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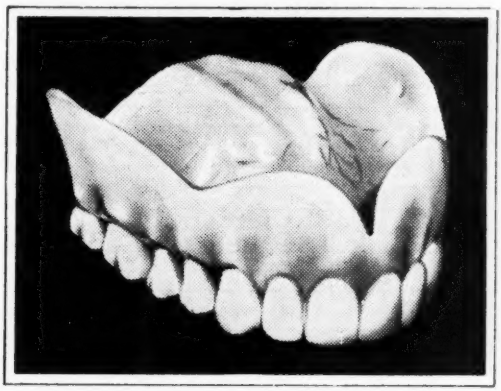

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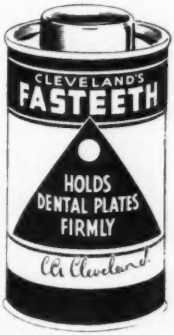

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A PSYCHO-SOMATIC STUDY INTO THE NATURE, PREVENTION AND TREATMENT OF THUMB-SUCKING AND ITS RELATIONSHIP TO DENTAL DEFORMITY.*

A. G. H. LAWES, D.D.Sc.

PART 1.

CONTENTS.

1. INTRODUCTION.

As in a previous paper[1] this work starts with an attempt to demonstrate the essential unity of health. Within the field of prevention, control, and treatment of disease and dysfunction, a realisation of the complete inter-relationship between the efforts of all health workers is essential if what appears to be a desirable course of treatment in one direction is not to result in disturbance in another direction, and this thesis will try to demonstrate the need for dentists to possess such a realisation.

Physiology is a study of the functioning of the human body whilst psychology is a study of the functioning of the human mind. The one is as important as the other and a full appreciation of the place of each and their close relationship to one another is a necessary approach to our present problem.

Regarding the handling of young children Morton[2] quotes Freud as saying "Educators . . . . . will transfer the main emphasis in education to the earliest years of childhood . . . . . the little human being is frequently the finished

*Portion of the thesis presented in fulfilment of the requirements for the degree of Doctor of Dental Science, University of Sydney. Degree conferred October 10, 1949.

1. Lawes, A. G. H.—Dental health service as a factor in preventive medicine and social welfare. Thesis presented for M.D.S. Degree, 1946.
2. Morton, George F.—Childhood's fears, London, Duckworth, 1925.

product in his 4th or 5th year and only gradually reveals in later years what lies buried in him."

The responsibility on the dentist therefore is clear, and his first care should be to avoid disturbing the child's sense of security. If the child has been carefully handled at home, he comes to the dentist without any fear or apprehension, and this mental state should be maintained.

The habit of thumb-sucking is of great significance both to the psychologist and the dentist and the attempt is made in this paper to survey this problem as a whole.

Standardised information has been obtained from over 2,000 children aged 5 years or under, together with detailed case histories of 52 of them. Observations have also been recorded of parallel behaviour in calves.

Theoretical evidence supported by these practical investigations show that thumb-sucking is primarily a psychological problem, the treatment of which must conform to accepted psychological principles. It has its origin in the disturbance of an instinctive urge in early infancy, and is broadly divided into two phases, each of which require different handling, namely the pre-weaning phase and the post-weaning phase. The term pre-weaning means that period, usually from birth to nine months, during which the infant relies almost entirely on the act of sucking to obtain its food, and the post-weaning period refers to the time when the sucking in of food has been discontinued.

It should be noted too that wherever in this thesis the term "thumb-sucking" is used it is intended to mean thumb, finger, or hand-sucking.

The intention is to accept the proof, which is already available, that thumb-sucking is a potential menace to the dental structures and to proceed to investigate the true nature of the act of thumb-sucking, why it occurs, how it can be prevented, and how it can be treated.

Considerable attention will be given to the instinctive nature of the sucking act, and to the entirely new light which is thrown on the whole dental approach to the problem of thumb-sucking when this instinctive basis is appreciated. This thesis is a study in preventive dentistry, not in orthodontia. If it falls largely outside the field of what has hitherto been generally regarded as the field of dental science, then the humble suggestion is made that the compass of this field should be enlarged.

2. The Effects of Thumb-sucking on the Dental Structure.

It is generally accepted that the act of thumb-sucking is a potential menace to erupting teeth and developing jaws and a survey of dental literature on the subject proves this beyond reasonable doubt.

Of course, not all children who suck their thumbs develop malocclusion. Much depends on the sucking technique and the duration and intensity of the habit as well as whether or not the children in question have well-developed, strongly-built jaw-bones which are capable of withstanding the abnormal pressures brought to bear upon them during the thumb-sucking process.

No doubt, too, self-correction does take place with some children after thumb-sucking has ceased, provided normal lip, cheek and tongue function still exists, but where this normal function does not exist then self correction is impossible.

A mass of evidence is available to prove that thumb-sucking is capable of causing and, in very many cases, does actually cause extensive malocclusion,

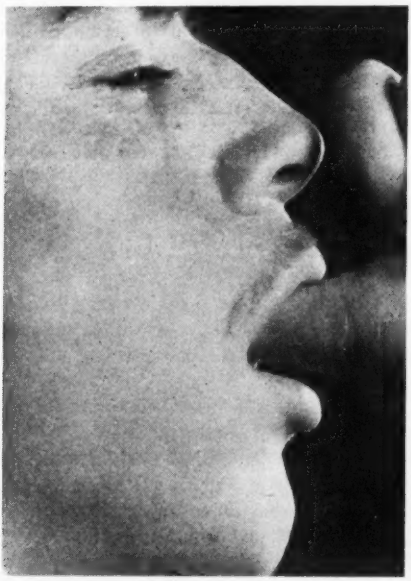

Fig. 1.

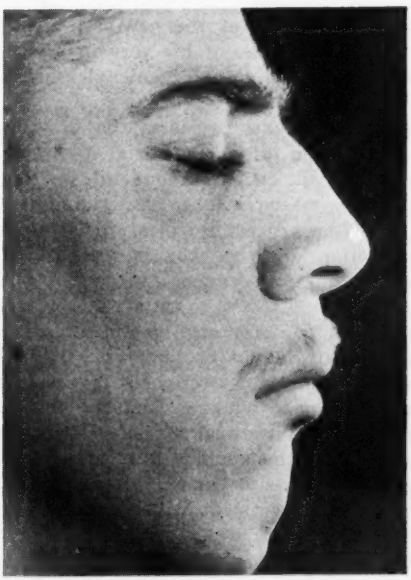

Fig. 2.

Figs. 1 and 2 are photos of an 18-year-old boy who is still a persistent thumb-sucker. Fig. 1 shows the technique used and Fig. 2 shows the very considerable facial disfigurement resulting from the habit.

with resultant impairment of masticatory function and a probable increase in susceptibility to dental caries and gingival infection.

An example of extreme deformity caused by persistent thumb-sucking is shown in the photographs (Figs. 1, 2 & 3) of the 18-year-old boy who persistently indulged in the habit since early childhood.

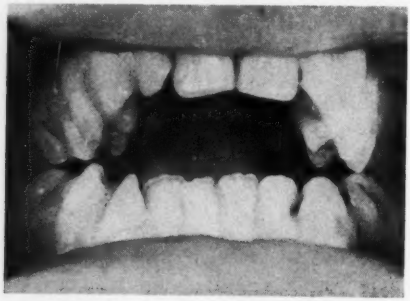

Fig. 3 is from the same 18-year-old boy and it shows the appalling distortion resulting from thumb-sucking.

3. The Opinions of Some Psychologists Relating to the Act of Thumb-sucking.

One of the very first actions of the new-born infant is to suck at his mother's breast, and this too is one of his very first pleasures. This sucking is an instinctive act, and a powerful organic pleasure, with which is soon associated a strong sense of security.

When a strong instinctive act promotes the first organic pleasures and, at the same time, satisfies the infant's material need for a sense of security, very powerful associations will be built round this act of sucking.

McRae[3] says "Nature means man to enjoy in a pleasurable way every function of his body and the instinct for pleasure is just as much a hunger as the instinct of preservation. So the baby in the sucking stage must do two things; he must satisfy physical craving for food and he must also satisfy sensual cravings for pleasure. To fail to satisfy either of these instincts means death, physical death in the one case, emotional death in the other."

Some babies suck their thumbs or fingers from birth and care must be taken that the situation is handled correctly, for there is little doubt that lasting harm can be done to the baby by a too enthusiastic and misguided interference with the act. The continual removal of hand from mouth, the binding of elbows and other forceful methods inflict a terrible sense of frustration. If this sense of frustration becomes associated, as the child grows older, with one or both of his parents, his resentment will remain always in his unconscious mind and will result in an unbridgeable gulf between parent and child which neither will understand, but which will cause much unhappiness to both. The parent will, in most cases, fail to recognise the part which he himself has played

3. McRae, William A.—Foundations of Behaviour, London, Oxford University Press, 1945.

in bringing about the unfortunate situation; and of course the child will be quite unable to account for his serious mal-adjustment in relation to his parent.

Zoe Benjamin[4] stresses need for companionship on the part of the young baby and points out that this need from about two months onwards is becoming steadily stronger. If the baby is deprived of this companionship which he is beginning to seek, he will be thrown back on himself as his first outward movements towards social life are baffled. The tendency then is for him to find substitute pleasures and satisfaction through sensations of his own body, whereas the thoroughly happy, well-adjusted infant will not indulge in such practices.

Susan Isaacs[5] speaking of child development under 5 years refers to the fact that what one child does for one person under certain conditions is no reliable guide as to what he may do for another in a different situation. She speaks too of the "hair trigger action of external events" (*e.g.*, loss of nurse or mother, severe treatment for bed-wetting, forcible interference with thumb-sucking . . . . . ., etc.) causing a profound redistribution of internal forces at any point of experience which may alter the course of the child's development in a way that could hardly be foreseen at an earlier age.

She says that in early infancy thumb-sucking can often be controlled by placing the baby's arms in his wraps in such a way that he cannot *easily* get his hands to his mouth; for instance, wraps may be fairly closely fitting over the shoulders but loose over hands and arms. This will discourage him if the desire is not urgent, but if he is very determined and the need for this form of satisfaction is very strong, then it will fail. No success can be expected either, unless underlying causes and contributing factors are first corrected. If his arms were tied down, the persistent sense of irritation and frustration would most likely do more harm than the thumb-sucking. Enthusiastic advocates of these severe measures forget that the baby is not a mere machine of which this or that part can be moved or pushed about at our will.

The baby *can* be prevented from getting its thumb to its mouth, but often the price paid is continued nervous strain, mental disturbance and hopeless anger, all of which may spread most harmfully over the whole mental life.

She says that, to lessen the habit and to help the baby grow out of it easily, one must be sure that he is getting full satisfaction at breast or bottle. His attention too must be directed away from his thumb during waking hours by constructive means, such as giving him more companionship than would otherwise be necessary, and leaving him alone in his cot as little as possible when awake. He should be talked to and have his play shared, such as play with rattle, picking up and throwing down his spoon or toys, and in various other ways occupying him and leaving him as few opportunities as possible to turn in on himself for amusement.

Marion Faegre and John Anderson[6] suggest as a possible cause of thumb-sucking, even among breast-fed babies, the failure to satisfy fully the sucking instinct through over-hasty feeding at the breast. This would result in a sufficiency of food but an insufficiency of sucking movement. Thumb-sucking which persists beyond babyhood must be regarded as an infantile habit which

4. Benjamin, Zoe—You and your children, Sydney, Gayle Publishing Co., 1944.
5. Isaacs, Susan—Social development in young children, London, George Routledge and Son Ltd., 1945.
6. Faegre, Marion L. and Anderson, John E.—Child care and training, Minneapolis, University of Minnesota Press, 1943.

still persists. It provides a pleasure faintly echoing that enjoyed at the mother's breast and he comes to depend on it more and more for comfort when tired, hungry, bored or emotionally upset. It is claimed that mechanical means are useless, and so, too, are scolding and nagging; for these latter will have the effect merely of driving the child to seek his one sure way of escape and comfort —sucking his thumb. An interesting point, too, is that noted by several other observers; namely, that whilst the thumb is in the mouth all other stimuli remain more or less completely blocked, and objects which usually arouse fear will fail to produce any effect.

It is further suggested by Faegre and Anderson that the persistence of thumb-sucking in an older child may be his way of obtaining attention from his mother. He may be jealous of a new baby and feel deprived of the attention for which he craves, and to suck his thumb is the one sure way of getting it.

When thumb-sucking as a habit is well established in later childhood, it usually becomes a means of warding off attacks of various sorts, and it becomes necessary to find out why the child needs a fortress to hide in rather than to try and "break" the habit itself. As it serves no good purpose to talk to the child about the habit, this should be avoided; otherwise he will revert to it as a defence against criticism. Without substituting some desirable activity to occupy him it is quite hopeless to conquer the habit. Perhaps he has exhausted the possibility of his play things, or has outgrown them, he has no playmates or he needs more attention and affection from his parents.

These comments of Faegre and Anderson are considered to be an extremely valuable contribution to the knowledge of the thumb-sucking act.

Strain[7] passes off the habit as relatively unimportant by saying "All babies suck their thumbs, fingers or fists—it's part of babydom."

It is my belief, however, that Strain and others, who discount the seriousness of thumb-sucking in early infancy and who suggest that it is an act which comes more or less naturally to all babies, fail to understand the true nature of the act and, having failed to understand its true nature, it follows that they fail too in understanding the fundamental principles of sound treatment. The obstructive methods often advocated are not only quite ineffective, as evidence produced later will show, but can be extremely harmful. The strongest objection too must be taken to the punishment method suggested by Watson[8], if only because this implies very strongly that there is a moral issue involved in the process of thumb-sucking. This cannot be refuted too strongly. The process is completely amoral and any attempt to introduce moral issues will only result in making an already difficult problem more difficult and more complicated.

From a survey of the writings of many well known psychologists on the subject of thumb-sucking, a few of whom have been quoted, it would seem that despite the availability of much useful information there is, nevertheless, a lack of any complete or detailed understanding of the true nature of the process. There is little or no mention of the possible dental deformities which may result, and I was able to find very few statistics or reports of practical investiga-

7. Strain, F. B.—New patterns in sex teaching, New York, D. Appleton-Century Co., 1934.
8. Watson, John B.—Psychological care of infant and child, London, George Allen and Unwin Ltd., 1928.

tions to support the many opinions which have been expressed. The attempt will be made in this thesis fully to support conclusions with statistics and reports of actual observations.

4. The Instinctive Nature of the Sucking Act.

The action of sucking, like any other action, can either be reflex, instinctive or purposeful, and it is important to study its exact nature, because upon this will inevitably depend the whole technique of handling the problem.

Martin[9] says:—"Behaviour patterns, so far as may be observed, imply nervous levels and neurone patterns; function implies corresponding organic development and structure. Thus we have in progressive order—(a) the spinal reflex or sensory motor activities; (b) instinctive behaviour; and (c) voluntary or intelligently purposeful and deliberate behaviour which corresponds to the spinal, thalamic and cerebral levels of the nervous system respectively."

Speaking of reflex action, Martin says:—"The stimulus is appreciated as mechanical in character. The strength of reactions is regulated within certain limits by the strength of the stimulus and the response is automatic. The 'all or none' law is operative at this level. The limits are those imposed by the facility of nerve conduction and muscular fatigue."

Speaking of instinctive behaviour he says:—"This form of behaviour has been narrowly described as a chain or complex of reflexes. But while it is possible to reduce an instinctive disposition to such, the essential element of integration and organisation is lacking in this analytic reduction."

He very helpfully examines in detail the sucking activity and says:—"Examine a simple form such as the sucking instinct or the food response of an infant. If one reduces this to a series of reflexes then the result is as follows:—

(a) Contact of lips with the nipple causes—

(b) Closure of the gums, stimulating in turn—

(c) Muscular contraction of the mouth, thus forcing a flow of milk.

(d) This latter stimulus then arouses swallowing response in the throat forcing the food down the gullet—where—

(e) Its presence further causes contraction until its flow into the stomach promotes—

(f) the flow of the gastric juices, and so on.

But such a train of reflexes totally ignores such things as the preparedness of the organism and the integration of all its parts into one co-ordinated action of food response. A condition of hunger or satiety prepared the organism. If there were no preparedness, then there would be no acceptance or avoidance of food. Such forms of instinctive behaviour are not to be compared with the automatic action of a reflex. Again, if the bottle be removed before the child's hunger is satisfied there is an angry protest and struggle instead of a simple form of activity such as a reflex."

Martin further notes that it is an important characteristic of an instinctive act that if it fails in one direction, the organism attempts a variation of activity in its response. On the other hand there is no discrimination in the reflex.

9. Martin, A. H.—Psychology in outline, Sydney, Dymocks, 1945.

His definition of an instinct is:—"An innate disposition or behaviour pattern common to the species which causes the organism to respond immediately in such a way as to attain ends without previous instruction and without foresight of the ends."

The sucking action is undertaken by babies immediately after they are born. No tuition is normally necessary and although some improvement in the actual technique does take place as the infant matures, nevertheless, it is able to suck quite efficiently immediately after birth and in such a way as to derive all its normal nutritional requirements. It is obvious, therefore, that the act is not a voluntary or purposeful one. The reflex act is, as has been pointed out, a purely mechanical one. It operates when a stimulus is applied, but ceases to operate when the stimulus is taken away. It is clear from Martin's descriptions that the sucking act is a purely instinctive one.

Flugel[10] speaking of McDougall says:—"McDougall's realisation of the role of instinct is all important for the understanding of behaviour. Instincts are hereditarily determined channels for the discharge of nervous energy." They are 'psycho-physical dispositions' to use a term of his. He goes on to say:—"It is the essence of the hormic view that instincts provide us with primitive desires and purposes which continue to express themselves in various ways according to the past experience and the present situation, until they are satisfied. In the course of this process of seeking satisfaction, instincts undergo complication and modification, so to speak, at both ends. They come to be aroused by objects other than those by which they are innately set in motion . . . and they express themselves in behaviour different from that which is innately determined."

This is of great importance and significance in our consideration of thumb-sucking because, although the habit may start through lack of satisfaction of a simple, primitive instinct associated with food-getting, there is also an emotional end to be satisfied and, if this food-cum-emotional end is unsatisfied, then it seems very probable that some of the complication and modification of which Flugel speaks takes place. Then, instead of the infant being satisfied naturally at the breast, he may turn in his search for this satisfaction to his readily available finger or thumb. His sense of security is at its maximum when he lies in his mother's arms while being fed. It can be seen that if he, for any reason at all, should turn to finger-sucking, this will become strongly associated with his sense of security and it has been frequently observed that when young children are in need of comfort they very readily turn to thumb- or finger-sucking. This comment of Flugel's illuminates to the oft-expressed view that thumb- or finger-sucking is a natural act. This is not so, but it is an instinctive act which has undergone "complication and modification." It will be remembered too that one of the characteristics of an instinct mentioned by Martin is "If the instinctive act fails in one direction, the organism attempts a variation of activity in its response." It follows naturally, therefore, that in seeking the solution of thumb- and finger-sucking, we must trace back to where these complications commenced. Efforts must be made to see that natural instinctive urges are satisfied in a desirable fashion, and thus will be avoided undesirable modifications.

10. Flugel, J. C.—A hundred years of psychology, London, Duckworth, 1945.

It would appear that the whole crux of the thumb-sucking problem is contained in the following further quotations from McDougall[11]:—"The process (instinctive) unlike any merely mechanical process, is not to be arrested by any purely mechanical obstacle, but it is rather intensified by any such obstacle and only comes to an end either when its appropriate goal is achieved or when some strongly incompatible tendency is excited, or when the creature is exhausted by its persistent efforts."

If we accept the contention that sucking is a purely instinctive process then this dictum of McDougall's disposes once and for all of the hope of checking or breaking the thumb-sucking habit by the use of more or less mechanical obstacles such as elbow splints, sticking-plaster, mittens and the like. This explains, too, how it is that children can be subjected to these restrictive procedures for long periods of time without such procedures meeting with the slightest success.

It is of great importance, too, that we appreciate the emotional content of an instinctive act. McDougall stresses this and it is entirely consistent with the views of Susan Isaacs and others who point to the need for emotional satisfaction as well as nutritional satisfaction in the suckling of an infant.

McDougall says:—"We seem justified in believing that each kind of instinctive behaviour is always attended by some such emotional excitement however faint, which in each case is specific or peculiar to that kind of behaviour. Analogy with our own experience justifies us also in assuming that the persistent striving towards its end which characterises the mental process and distinguishes instinctive behaviour most clearly from mere reflex action implies such mode of experience as we call conative—the kind of experience which in its more developed forms is properly called desire or aversion, but which in the fluid form in which we sometimes have it, and which is its general form among the animals, is a mere impulse or craving, or uneasy sense of want. Further, we seem justified in believing that continued obstruction of instinctive striving is always accompanied by a painful feeling—its successful progress towards its end, by a pleasurable feeling—and the achievement of its end by a pleasurable sense of satisfaction."

The behaviour of calves, which is described later, exemplifies very clearly the impulse or craving of which McDougall speaks and the whole paragraph provides support for the contention that the process of tail- or ear-sucking in calves is a similar one to that of thumb-sucking in infants. Both are undoubtedly modifications of the instinctive sucking-feeding act and consequently the whole approach to the problem of thumb-sucking must be based upon a recognition of its instinctive origin whilst treatment must proceed always along lines which are consistent and not in conflict with the mode of operation of all instinctive behaviour.

5. Some Characteristic Forms of Behaviour.

Attention has already been drawn to the necessity of avoiding oral frustrations at the period of oral satisfactions, and how suckling at the breast not only satisfies nutritional requirements but also emotional and sensual cravings as well.

11. McDougall, William—An introduction to social psychology, London, Methuen and and Co. Ltd., 14th Ed., 1919.

more sensitive being, and the whole feeding mechanism is a much more delicately poised process than it is in the calf, but nevertheless both are born with the same strong natural instinct to derive food and satisfaction from the act of sucking and if full satisfaction is not achieved in the manner innately intended then some substitute will be sought. In the case of calves, it will be the finger of an attendant or the ear or tail of another calf, whereas in the human infant the substitute will be his own thumb.

Thumb-sucking then should be recognised for what it is, merely the evidence of some maladjustment in the child's environment which, if corrected at once, will almost invariably result in the practice being discontinued.

It should be recognised, too, that thumb-sucking in the vast majority of cases starts in the oral stage of existence owing to some disturbance of the smooth functioning of his sucking-feeding routine.

If an infant is continually frustrated during this stage of his existence and is ever seeking satisfaction and being disappointed, then it is very natural for him to obtain some substitute satisfaction if he can, and the conveniently placed thumb or finger provides this. If now, instead of thoroughly investigating the feeding situation to find the reason for thumb-sucking, the arms are splinted or other forcible means are adopted to stop it, it can easily be seen how bewilderment, fear and frustration are made doubly strong. McDougall's reference to the painful feeling engendered by continued obstruction of instinctive feeling is now applicable. Unless underlying maladjustments are corrected, no amount of bandaging or physical restraint will have any useful result whatever.

Furthermore Anderson[14] points out that "with increasing age the process of diverting the organism, so to speak, becomes more and more difficult since each new activity or skill has to compete with others already established. The early-acquired skill or activity not only gains by virtue of its priority, but also by virtue of its capacity to block other acquisitions."

It will be readily seen, therefore, that if an infant should start sucking his thumb, and efforts are made by purely restrictive means to prevent him from doing so, attention is immediately focussed upon the act by the opposition encountered, and renewed efforts will be made to overcome the opposition. This will not only fail to stop the act, but instead it will become fixed more strongly than ever. If the infant has discovered his thumb with his mouth, and by sucking it he can help to satisfy a powerful, deep-seated and hitherto unsatisfied or partially satisfied instinct, then efforts to obstruct him will only stimulate him to persevere in his effort to overcome the obstruction. To try and dam back a strong instinctive urge because some of its manifestations are deemed to be undesirable is like trying to dam back a river because some of the land through which it flows is wanted for other purposes. If the river is pursuing an undesirable course, then obviously the thing to do is to provide an alternative channel and to divert the stream into a new channel and away from the old one; and if an instinctive urge cannot be fully satisfied by the means innately intended for it and is finding satisfaction by means of undesirable acts, then alternative acts of a desirable nature must be provided and the stream of instinctive energy diverted in the direction of the new acts and away from the old ones.

14. Anderson, J. E.—Child development and the interpretation of behaviour, Science, 83:245, 1936.

Ena Roberts[12] provides most valuable complementary evidence in her report of a detailed examination of 30 infants aged 7-8 months. Fifteen of these infants were known to be thumb-suckers and fifteen were known not to be. The report discloses a close relationship between the length of feeding times and the onset of thumb-sucking, and in this way would appear to dovetail in with the contention that not only must nutritional requirements be satisfied, but also that emotional and sensual satisfactions must be met. When feeding time is too short, then these latter requirements are unfulfilled and the substitute of thumb-sucking is resorted to. Roberts points out that in general those who were not thumb-suckers enjoyed a longer feeding time than the thumb-suckers.

Thumb-sucking also began in a number of cases following a diminution in the feeding time and it is suggested that this accounts for the onset of the habit whilst the feeding time is still fairly long but was preceded by an even longer period. Short feeding times and decreased feeding times account, within the survey of the 30 children studied, for all but two of the thumb- or finger-suckers.

She gives the following chart showing the distribution according to the average feeding time per day during the first nine months for the entire group of 30 infants and for the two sub-groups, as follows:—

Average Feeding Time—Min. 24 hrs.	No. of Finger Suckers	No. of Non-Finger Suckers	Percentage of Finger Suckers
Less than 40 mins. ...	3	–	100
40 to 69 mins.	5	–	100
70 to 99 „	5	5	50
100 to 129 „	2	7	22
130 and over	–	3	—

Levy[13] tells the story of the behaviour of young calves, and he says that a calf which is not allowed to suckle its mother, but is taught from the start to feed from a pail, is likely to suck, for some time after being fed, an accommodating ear or tail of another calf, or any other object which is handy.

This sucking on the part of the calf seems to correspond exactly to the thumb-sucking of the infant and to confirm its instinctive nature. My own animal observations, reported later, support those made by Levy. They go further, however, and demonstrate very clearly the instinctive nature of the sucking-feeding activity and show how any disturbance or frustration of this instinctive urge will inevitably lead to the use of a substitute until the urge is satisfied.

The nature of the processes involved are strikingly demonstrated by comparing the behaviour of calves of dairy cattle with those of beef cattle.

Dairy cattle which are normally weaned from their mothers at birth and are fed from a bucket invariably turn to substitute sucking, whereas the calves of beef cattle, which remain with their mothers and suckle for 6-7 months unhindered, never do. In the one case the instinctive sucking urge is completely frustrated and in the other it is fully satisfied. The human infant is a much

12. Roberts, Ena—Thumb- and finger-sucking in relation to feeding in early infancy, Am.J.Dis. Child, 68:7-8, July, 1944.
13. Levy, David M.—Thumb- or finger-sucking from the psychiatric angle, Child Development, 8:99-101, 1937.

is to remain in perfect adjustment with his environment. For instance, if his food is carefully prepared both as to quality and quantity; if his feeding bottle and utensils are thoroughly sterilised; if the feeding teat is such that he will feed neither too quickly nor too slowly; if his mother nurses him just as she would if she were feeding him at the breast; if she remains quiet and relaxed and the whole environment is calm and peaceful, then artificial feeding may approach very closely to the conditions of an ideal breast feeding. In such circumstances it is possible for most infants to satisfy their instinctive requirements. If on the other hand, despite the provision of the correct amount and quality of food, various requirements are neglected; if, for instance, instead of being nursed in the arms of his mother or mother-substitute, he is left in his cot with his bottle propped up on a pillow; if at feeding time there is noise, distraction and tension and, most particularly, if the feeding rate is too quick, then it would be impossible to avoid feelings of frustration and dissatisfaction. The sense of protection, security and comfort would be partly or completely destroyed. The finely adjusted balance of the feeding situation would be upset and variations in behaviour would have to be expected.

In a like manner it by no means follows that because an infant is breast-fed he is fully satisfied and well-adjusted to his environment and to his mother; indeed, there are very many breast-fed babies that give evidence of some maladjustment by turning to thumb-sucking. There can be no doubt that the breast-fed baby has a much better chance of having his physical and emotional requirements satisfied than the artificially-fed baby, but it is equally certain that there is still the need for close attention to detail in his feeding technique. It is quite possible for the mother's own milk to be of a quality which is unsuitable for her infant; (see case history Judith C—Part III) her nipples may be such as to demand too great an effort from the infant, resulting in feelings of frustration and resentment; her milk may come too easily, thereby requiring insufficient effort on the baby's part. Then, too, she might be nervous, worried and upset by home conditions and these feelings of disturbance are very readily transmitted to the baby. It might be impossible for feeding to take place in a quiet, calm and restful atmosphere and thus, despite the infant's nutritional requirements being satisfied, these various other factors may result in a complete destruction of what might be called the feeding balance. As a result, one would expect to observe behaviour problems, and one of the commonest of these is thumb-sucking. The act of sucking at the mother's breast is the very core of the young infant's existence and with it are linked, as has been shown, strong feelings of comfort, security and protection. If for any reason this central act of sucking becomes unsatisfactory, the infant's feelings of security, comfort and protection are also upset. He will endeavour to satisfy his sucking instinct by turning to a substitute, generally his own thumb or finger, just as the calf, if cheated of its sucking satisfaction, will turn to the ear, teats, tail, etc., of another calf for a substitute. There is no doubt that this substitute thumb-sucking does promote quite strong feelings of security, comfort and protection because of its close association with the genuine feelings of security, comfort and protection experienced whilst sucking at the mother's breast. The important point to realise though is that this substitute sucking is not a *real* satisfaction, and there is no *real* security or comfort or protection associated with it. It is a pure fantasy, and the more it is indulged in, the more is built up a substitute sense of security. The unreality or fantasy associated with it increases until

6. Substitute Satisfaction and Fantasy Formation.

The evidence produced is conclusive that the sucking process is an instinctive act having roots deep in the human organism. It is a stream of energy which must be satisfied and there can be little doubt that thumb-sucking in the human infant, like ear- and lip-sucking amongst calves, is a symptom of an underlying maladjustment, a symptom of an unsatisfied, or partly satisfied, instinctive urge. The new-born human infant finds food, security and comfort in its mother's arms, and its first and most urgent need is to satisfy the sucking instinct by means of which it can obtain food and nourishment. The human infant, unlike most animals, is completely and utterly dependent upon its mother or mother substitute for a considerable time after birth. The calf during its suckling period can be more or less independent of its mother; it can fend for itself, but the human infant cannot. The conditions of warmth, comfort, security and nourishment which the infant experiences in its mother's womb are continued, to a very large extent, during its suckling period. The satisfaction of the sucking instinct, therefore, is inextricably linked, from the very beginning, with feelings of security, comfort and protection as well as with the assuagement of hunger. The feeding of the young infant is a delicately balanced proceeding and the continued disturbance of this balance will inevitably lead to a disturbance of normal natural behaviour. When a dairy calf is weaned from its mother immediately after birth its nutritional requirements can be satisfied quite easily by feeding it from a bucket, but this means that its instinctive sucking urge is completely denied, with the result that it turns to substitute sucking of another calf's ear, lips, tail, etc. The human infant cannot be fed in this way, and it can only exist at first by sucking its food. If it is weaned from its mother, then it must be provided with nourishment by means of some sucking device such as a nursing bottle. The processes of weaning the calf from its mother and feeding it with a bucket, and weaning the human infant from its mother and transferring it to a bottle are similar in character, but they differ in the degree of disturbance. Although with the human infant the change is less violent inasmuch as it is from one form of sucking to another, nevertheless it can still be, and in many cases is, a very great disturbance. As has already been pointed out, the human infant requires not only food, not only the physical exercise provided by sucking, but in addition it requires the satisfaction of those feelings of security, protection and comfort with which the sucking-feeding process is so closely linked. Although there are many cases on record where children have, of necessity, been weaned from their mothers much earlier than the normal weaning time and have shown satisfactory physical growth, and have not turned to any substitute sucking such as thumb- or finger-sucking, yet my statistics show that this substitute thumb-sucking is more prevalent amongst artificially-fed children than breast-fed children. The difference is not as great as one would expect at first glance and the explanation, of course, lies in the fact that most babies that are weaned early or have the mother's milk complemented with bottle feeding are treated thus because they cannot, for various reasons, be fully satisfied at the breast. The change-over in these cases, therefore, to full or partial bottle feeding, is designed to restore the feeding routine to a proper balance and to ensure as nearly as possible that the baby's instincts are fully satisfied. In such cases the change would tend to prevent thumb-sucking rather than encourage it. The greatest care and the closest attention to detail, though, is necessary if the artificially-fed child

the time comes when the sucking of one's thumb is used as a means of retreat and of escape from unpleasant realities.

Several writers have observed how some young children aged about 2 to 3 years, whilst busily sucking their thumbs, seem immune to events which under other circumstances promote feelings of fear and distress. The explanation, of course, is that they have retired into their world of fanstasy and are no longer affected by the real events happening about them. The whole process is one of conditioning which started when the young infant associated feelings of security so closely with the act of sucking at its mother's breast. When the child is two or three years old, the mother's breast is long forgotten but the sense of security, albeit a false one, is still promoted by the sucking act and its own finger provides the vehicle. The fantasy process perhaps had its beginning when the infant first experienced feelings of frustration when the proper balance surrounding its feeding was upset and it found substitute satisfaction in its thumb. To suck a thumb now is to escape from reality to fantasy and it will be seen that the reverse process too will operate. One of the commonest times when children suck their thumbs is at story time. Habitual thumb-suckers at the Lady Gowrie Child Centre, Sydney, have frequently been observed at story time listening with rapt attention and sucking hard at their thumbs all the time. By a process of conditioning, thumb-sucking promotes a sense of fantasy and conversely fantasy promotes thumb-sucking and so with the commencement of the story, or fantasy, the thumb-sucking commences also. In one of our daily newspapers recently appeared a photograph of a group of children watching the arrival of Santa Claus. Here indeed was fantasy and here too were a number of thumb-suckers.

Perhaps the commonest situation of all though in which young children suck their thumbs is when they are going to sleep (Table I) and it is the situation in which the persistent thumb-sucker will continue to operate after the practice has been discontinued in all other situations. The original stimulus undergoes a series of modifications to bring this about and the available evidence suggests a chain of events starting when the baby's sucking-feeding instinct is unsatisfied during the normal feeding process and he turns to thumb-sucking as a means of completing this satisfaction. As previously pointed out, sucking at the breast promotes strong feelings of comfort and security, and the baby soon discovers that thumb-sucking calls forth similar feelings, albeit they are only fantasy feelings. When hurt, upset or tired, he will then suck his thumb in order to produce these feelings of comfort and security. In this way thumb-sucking and security feelings become conditioned to one another, and the one will call into being the other. When the baby is tucked up in his cot, comfort and security feelings are very strong and consequently if he has acquired the practice of thumb-sucking at all it will invariably show itself during the sleep situation. As the child gets older then, the thumb-sucking act is brought into operation by stimuli other than those which were originally responsible, and correction of the feeding defect—if it still exists—will not now cure the thumb-sucking. As times goes on and the child's understanding increases, the primary need for feelings of comfort and security at all times gradually fades, but by then a further modification has taken place. The act of going to bed and thumb-sucking have now become conditioned to one another and it is sufficient for the child merely to lie on his bed for the thumb-sucking to start. Often too the conditioning process continues

still further. My own son had a bunny rug of which he was very fond and on being put to bed he would always demand his "bunny rug to suck his finger with." If he should pick up this rug during the day he would immediately put his finger into his mouth.

Mrs. B. describes how her son, Garry (East Chatswood Kindergarten), would only suck his thumb whilst holding a piece of silk. This conditioning process started in his pram when his blankets were bound with satin. Even now at the age of 4 years, when thumb-sucking has diminished considerably, if he feels silk he will put his thumb in his mouth.

Judith S. (Croydon Kindergarten) now aged 3 years 8 months, has sucked her thumb from birth and now closely connects hand- or thumb-sucking with the sleep routine. She always puts her dolls to bed with her hand to her mouth.

Susan B. (Aust. Mothercraft Socy, Pymble), aged 1 year 5 mths, started thumb-sucking when 7 weeks old. She now does so mostly when tired or going to sleep, but she must always hold a piece of tape or ribbon with the other hand. For two nights running Mrs. B. withheld the tape from her cot and Susan was seriously upset and wouldn't go to sleep. Mrs. B. reports that Susan has only to pick up a piece of tape or ribbon and will immediately put her thumb in her mouth, look drowsy and as often as not will lie down on a mat as if going to sleep.

It is clear then that, if at this stage a mother should lie down beside her child at sleep time with the idea of providing feelings of comfort and security by her presence, this will be just as much a failure in preventing thumb-sucking as it would be to look for a feeding defect. On the other hand both measures would probably have succeeded if they had been used at earlier appropriate stages. Now further modification has taken place and at the present stage merely to feel tired, or to go to bed, or to feel a piece of ribbon, is itself a strong stimulus to the thumb-sucking act.

Obviously the first step in handling the problem of thumb-sucking is to prevent it ever occurring and the responsibility for this hardly rests with the dentist. With respect, it is suggested to the pediatricians that there is the need for a careful revision of the infant feeding technique so that the appearance of thumb-sucking in the infant will be recognised as a symptom of some imbalance in the sucking-feeding routine and that steps will be taken at once to diagnose and correct it.

A few children turn to thumb-sucking at weaning time after a normal nine or ten months breast feeding and this fact, too, points to the need for great care and skill in guiding the infant through, what is to him, something of an upheaval. For him to start thumb-sucking at that stage is to take a serious step backward. It is a reversion to an infantile practice and every effort should be made to find the cause and correct it. The sucking urge should now be left behind, and he should move forward, not backward. If the weaning period has passed without any signs of the infant turning to thumb-sucking it is very probable that he will never do so, and therefore the importance of so ordering his existence that this troublesome practice never starts can scarcely be over-estimated. Even after weaning though, there is still the possibility of a reversion to this infantile practice, and careless handling on the part of his parents, or severe emotional distress can lead the infant to turn for security and comfort to that fantasy world which is called into being through the act of sucking, and the ever present thumb is the vehicle used. Once thumb-sucking

continues after the weaning period, and more particularly if it starts after that period, it can be an extremely troublesome practice to stop.

Andrew D., whose case discussion appears in a subsequent section of this work, is one who started thumb-sucking after weaning. In response to a severe emotional upset he started the practice at 3½ years of age.

Sometimes, too, after the arrival of a new baby the thumb-sucking on the part of the older child is an attempt to regress to an infantile state in which he was entirely dependent on his parents and enjoyed their whole attention.

Once the practice is started it easily develops into a habit because it is strongly reminiscent of the comfort, security and pleasure experienced as an infant in the mother's arms. These same feelings are stirred again in fantasy and, once awakened, it is all too easy to turn again and again to this fantasy world, especially in times of stress.

These instances to the contrary, the fact remains that all evidence supports the contention that in the vast majority of cases thumb- and finger-sucking starts in the first nine months of life—the oral stage of existence—owing to some lack of satisfaction of the sucking-feeding instinct. (See Table II.)

7. A Criticism of Some Dental Methods of Treatment.

Included in the section of orthodontics in the Year Book of Dentistry 1941, is an article by Harriet Mitchell of the Mental Hygiene Institute of Montreal[15] in which she discusses the treatment of thumb-sucking. She claims that thumb-sucking is a normal activity in the infant and therefore it should never be directly interfered with, either by mechanical devices or by forcibly removing the hand from the mouth. Any show of disapproval or punishment is also condemned and, for the pre-school child, shaming, criticism, and ridiculing must be avoided.

My objection is directed against the claim that thumb-sucking is a normal activity which, of course, it is not. It should be recognised as the symptom of a more or less serious maladjustment immediately it shows itself and steps should be taken to diagnose and correct this maladjustment at once. To wait for 3-4 years before doing anything about it is to increase out of all proportion the difficulties of diagnosis and treatment, to say nothing of the possible necessity of having to correct the resulting malocclusion.

Nevertheless, the article is a useful one, in that it directs the attention of dentists to the fact that important psychological processes are involved. Unfortunately, the Editor, George R. Moore, quite fails to understand their significance, for in a footnote, he says:—

"Freedom is a good thing for children, but why should not parents enjoy it too? Articles like this by psychologists and pediatricians supply entertaining reading, but they bring heartaches to parents who take them seriously and then years later try in vain to find the money to pay for orthodontic services. Thumb-sucking can be stopped in practically every instance without harm to the child but certainly with great saving of future money and expense to the parent."

This comment is typical of the dentist who is quite unable to appreciate the unity of mind and body. He can see a dental problem and there his interest

15. Mitchell, Harriet—Thumb-sucking: Practical appraisal from mental hygiene and orthodontic points of view, 1941 Year Book of Dentistry, Chicago, Year Book Publishers, 1942.

ceases. Despite the overwhelming evidence of eminent psychologists that the act of thumb-sucking has deep psychological significance and that the incorrect handling of it may cause serious disturbance of mental development, Moore is prepared to dismiss such warnings as unworthy of serious attention. His statement that thumb-sucking can be stopped without hazard to the child makes no reference to the methods by which he considers this can be done, nor is it supported by any scientific evidence of any sort.

Teuscher[16] advocates an appliance consisting of crowns fitted to the first temporary molars on either side with a bar connecting them across the palate. The idea is that with this in place the child finds it difficult to suck and thus drops the habit. It is pointed out that lip-sucking and biting frequently follows thumb-sucking and, in extreme cases of this, the soldering of sharp spurs to the palatal bar is advocated to act as a deterrent. The article concludes with the gratifying statements that "the short spurs on the lingual wire should not be sharp enough to cut the lip" and "the appliance is not placed to punish the child but to help him."!! The Editor, George Moore, commends this barbaric treatment as follows:—

"Very good if the patented 'Prevent a Habit' fails. This is a device of heavy wire made to fit the individual's arms and intended to restrict elbow-bending only the necessary amount. If used constantly for several weeks, intra-oral devices are rarely needed."

It is well known how extremely irritating and fatiguing it is to have anything sharp and jagged in one's mouth and how impossible it is to keep one's tongue away from it, and one wonders how either writer or editor would like to have sharp spurs across their palates albeit "not sharp enough to cut the lip." One wonders, too, if they would be comforted by the thought that they were not being "punished but helped."

Adamson[17] completely sets aside the claim by psychologists that obstructive methods of treatment are harmful by saying:—

"General investigation of children as a whole, however, does not bear out this claim if the problem is dealt with in the correct way."

Just what is meant by "General investigation of children as a whole" is by no means clear and no further information is given about it; nor is any evidence produced which would make it possible lightly to set aside the psychologist's objections. Such general statements without any authoritative backing or supporting evidence of any kind can only be regarded as quite unacceptable.

Adamson's method of treatment, which is completely opposed to accepted psychological principles, is the use of an arm splint which is presumably intended for use for a considerable time and which prevents any bending of the arm at the elbow. If an adult had to wear such a splint, there is no doubt that he would find the enforced limitation of movement extremely irritating and distressing, but at least he would be able to appreciate the reason for its use.

An infant, however, is quite unable to understand what has happened to him, and it requires but little imagination to estimate the terrible feeling of frustration, fear, and anger which such a device must arouse in him. He cannot

16. Teuscher, George W.—Suggestions for the treatment of abnormal mouth habits, J.A.D.A., 27:1703-1714, Nov., 1940.
17. Adamson, Kenneth T.—Orthodontics and the general practitioner, Aust.J.Dent., 51:148, May, 1947.

use his hand to brush a fly from his face; he cannot scratch an itchy spot; in fact, he is completely frustrated. There seems to be general unanimity of opinion amongst psychologists—and some of their opinions have been quoted—that the general pattern of an individual's life is decided in the first five years of his life. Within those early years the meaning which he gives to life is crystallised and no fundamental changes will take place subsequently. If then the infant finds the world to be a place in which he finds frustration and fear instead of the love and security which he needs so much, he will grow up interpreting the world as a hostile place and he will react to it with feelings of hate and anti-social behaviour.

A tremendous responsibility therefore rests upon all those who are charged with the care of young children lest, in their desire to help them in one direction, they cause irreparable harm in another.

In my opinion there are two sound reasons why splinting of the arms as a means of correcting the thumb-sucking habit should never be used under any circumstances. Firstly, such a practice violates accepted psychological principles and is capable of causing extremely harmful and lasting effects on the child's personality; and secondly, the evidence obtained from my investigation of over 2,000 children reported in Part III and the 45 case histories shows that such obstructive methods almost invariably fail to achieve their objective.

In the same journal as that in which Kenneth Adamson's article appears is the description of a device for the prevention of thumb-sucking by Joan Rattray[18]. This consists of an acrylic moulding fitting over the thumb and fastened at the wrist with a man's watch strap. It is open at the end leaving the tip of the thumb free so that most normal hand movements are unimpeded but the thumb cannot be bent back into the typical thumb-sucking position.

This device is a vast improvement on the severe and harmful splinting advocated by Adamson but the improvement is in detail only and the underlying and undesirable principle of obstruction still remains. Miss Rattray shows some appreciation of the psychological considerations involved when she says: "The correct attitude of the parents towards its use, such that it is considered an advantage and not a restriction, must be stressed. It must be attempted to keep the child completely unconscious of the habit and ignorant of the purpose of the appliance. For this reason the name 'Thumbguard' is suggested."

My own early attempts at treatment along somewhat similar lines were completely unsuccessful and I firmly believe that it is quite impossible to do as is suggested and keep the child in ignorance of the purpose of the appliance. The mere appearance of it will at once excite interest and curiosity and some explanation will be needed. Unless the child really has a sore thumb which needs protecting, then the true explanation must be given, or lying resorted to, and to deliberately lie to a child is such a thoroughly undesirable practice that it is not worth serious consideration. The desire to avoid implanting in the child's mind any thought of obstruction or repression in connection with its thumb-sucking is sound, but the avoidance must be real, and the subterfuges suggested are too transparent to stand any chance of success. The claim that the thumbguard has been completely successful in two cases cannot be admitted without further information. If the correction of the thumb-sucking has been achieved at the cost of mental disturbance on the child's part or at the cost

18. Rattray, Joan—Device for the prevention of thumb-sucking, Aust.J.Dent., 51:177, May, 1947.

of developing an even more undesirable habit to take its place, then the cost has been too high, and what has seemed to be success when viewed from the purely dental angle becomes a failure when the total effect on the child's personality is considered.

It may well be, though, that the thumbguard has a useful place in the treatment of thumb-sucking if it is used strictly as an accessory and not as the principle means of treatment. Evidence will be produced later in this thesis that the only sound principle upon which correction of the thumb-sucking habit can be based in the post-weaning period is the re-direction of the energy behind the act into some other allied activity which is of a more desirable nature. Firstly, emotional peace must be achieved, all form of nagging and scolding discontinued, and the new substitute activity must be carefully and patiently encouraged. Having observed these fundamental principles it is possible *then* that the use of the thumbguard *might* be helpful. It would then be used in the nature of a reminder in the same sense as the tight wrapping of a baby's arms to discourage thumb-sucking *after* the complete correction of the sucking-feeding routine.

The thumbguard would then only be used with the full understanding and co-operation of the child and that would mean not before the age of 4 years.

Instead of regarding thumb-sucking merely as a potential cause of malocclusion, it should be regarded as a symptom of some underlying maladjustment. Of importance, too, is the necessity for recognising the child as an individual possessing certain very definite rights of his own. He is not a machine which one is entitled to obstruct or push around in order to save worry or expense. His individual personality must be respected and in no circumstances is it permissible for parent, doctor, dentist or teacher to impose his or her will on the child merely to serve his or her own interests or convenience. On the other hand, of course, discipline which recognises the child's individuality and which is exercised in a proper manner is both desirable and necessary.

The parents of a child who sucks his thumb will often obtain their first professional advice about the habit when they take the child to the dentist, because they are fearful of possible malformation of his jaws. This being so, a serious responsibility rests on the dentist, and great opportunity also, to see that the advice which he gives and the treatment which he prescribes, are based on sound scientific principles and designed to enable the patient to lead a fuller, healthier and happier life. If, in his efforts to safeguard the formation of his patient's jaws, the dentist upsets the smooth working of his mental processes, and particularly if he should do so in such a way as to harm permanently the child's psychological development, then whatever the result of the purely dental treatment, the end result, in terms of the patient's happiness and well-being, have been harmful and retrograde. In order to avoid this the dentist must know something of child psychology, the psychologist must appreciate the dental problem and both must co-operate to the full.

8. Treatment.

Pre-Weaning Period.

The main emphasis of treatment should be on prevention, and this must be initiated long before the age at which the dentist normally first comes

into contact with his young patients, and must therefore be the responsibility of pediatricians, nurses, kindergarteners and above all parents.

In the first place, it is necessary to assure those people who are looking for a quick, easy method of "curing the habit", that no such "cure" exists. Thumb-sucking is not a disease to be cured, but a symptom of a maladjustment, the correction of which requires considerable patience, perseverance, skilful handling and self-discipline on the part of those whose responsibility it is to handle it. Two principles apply to this problem at any age. The first is that if the conditions which caused the onset of the act in the first instance can be diagnosed and corrected before it acquires the characteristics of a habit with a drive of its own, then I believe that it will very soon be dropped without any further action being taken.

If on the other hand the original cause is not soon diagnosed and corrected, and the act does become fixed as a habit, then the second principle applies which calls for a re-direction of the stream of energy behind the act into some other more desirable form of activity. How this re-direction is to be achieved will vary at different ages. In the first six months when sucking either at the breast or the bottle is the only means by which the infant gets its food, it is very doubtful whether any efforts of re-direction are necessary. Sucking is a perfectly normal instinctive activity at this age which will continue to express itself, in one way or another, till it is satisfied. If it should express itself in the form of thumb-sucking, then it would indicate that it had not been completely satisfied during the feeding process and steps should be taken to diagnose and correct the faults which have developed. There is little doubt that, if this can be done, the thumb-sucking will cease in almost every case.

Dr. Young, the Superintendent of the Royal Hospital for Women, to whom I am indebted for carrying out certain investigations for me, has written as follows: "It is noted that thumb-sucking occurs mainly in those children who experience difficulty in feeding, and it appears to be associated frequently with an inadequate amount of nourishment. Generally speaking, efforts are made to break the habit by placing gloves on the hands of the children, and this appears to be successful *providing the child is fully fed.*" (Italics are mine.)

The use of mittens is really an obstructive measure which I believe it would be much better not to use and certainly their use could never be justified except when feeding and environmental conditions were perfectly satisfactory. As it would be very difficult to be always certain of this, I believe that other means of discouraging the thumb-sucking should be used. Dr. Young's observation is extremely valuable though, and indicates that it is easy to turn the infant's attention away from his thumb, provided the feeding routine is perfectly balanced. Instead of using mittens therefore, the same object would almost certainly be achieved by wrapping the baby in such a way that he experiences some difficulty in getting his hands to his mouth. The method has the great advantage over mittens that, if the baby urgently needs to get his hand free to suck his thumb, he can do so, and furthermore, if this happens, then it is also evidence that there is probably a fault in the feeding routine which needs correction. Without such correction first, neither mittens nor wrapping will do the slightest good.

Sucking is an activity which is appropriate to the infant's first nine months of life and the appearance of substitute sucking in the form of thumb-

or finger-sucking must be regarded as a disturbance or frustration, in some way or another, of the natural sucking-feeding instinct. Clinical evidence shows that one of the commonest ways in which the sucking-feeding instinct remains unsatisfied is when the mother has a very rapid and free flow of breast milk. The infant under these conditions can often satisfy his hunger and nutritional requirements in a very short time, and with a minimum of sucking activity. The instinctive sucking act in the infant possesses a certain measure of intensity and if this instinctive demand is repeatedly denied full satisfaction, then, bearing in mind the way in which an instinct operates, some other means of obtaining satisfaction will be sought, and the thumb or finger provides the most convenient vehicle.

The aim should be always to keep the feeding routine in proper balance. Nutritional, sucking and emotional requirements all have a place in maintaining this balance and the frustration of any one will cause an imbalance which will, in a certain number of cases, result in substitute sucking. This is shown very clearly in the behaviour of calves described in Part II. During the first six months of life the human infant is entirely dependent on the sucking act to obtain his food and consequently any appearance of thumb-sucking should immediately suggest a disturbance of the feeding routine, and of the sucking act in particular. A too rapid and too free flow of milk from the breast or bottle is a very common cause of thumb-sucking because it leaves the instinct to suck unsatisfied. (See Case Histories Part III.)

Although over-rapid feeding has long been recognised as undesirable and potentially harmful, its role as a possible cause of thumb-sucking has not been adequately recognised and consequently as long as the baby is healthy and putting on weight, despite this too rapid feeding routine, very little, if any effort, is usually made at correction. Immediately a baby starts thumb-sucking a too rapid and too easy flow of milk from breast or feeding bottle should be suspected and, if discovered, it should be corrected without delay.

This, of course, is the responsibility of the pediatrician and not the dentist, but mention can be made of two methods usually adopted. The first is by means of a rubber nipple shield in which the aperture can be adjusted to control the flow, and the other is by varying the postures of mother and baby so that the baby is above the breast and has to suck the milk upwards. Control of a too rapid milk flow is most likely to meet with success in correcting thumb-sucking within the first six months. After six months, difficulty may be experienced in getting the infant to take to the rubber teat of the nipple shield and caution must be exercised too, lest a too enthusiastic approach result in a sudden drying up of the mother's milk.

At about six months the first teeth erupt, solids begin to appear in the diet, and the gradual transition begins from the stage of development in which the sucking act is appropriate to the next stage of development in which the act of chewing is appropriate and, from this time onwards, if the child is a thumb-sucker, the principal method of treatment should be to provide increasing re-direction of energy away from sucking activities and towards chewing activities. One way in which this can be done is by gently removing the baby's hand from his mouth and *immediately* placing something attractive and chewable in his hand, such as a rusk, a brightly coloured peg, teething ring, rattle, etc. This must be done with great gentleness and friendliness in the nature of a game. Just to remove the hand from the mouth and nothing

more, however gently it is done, is doomed to failure because it would be a purely obstructive act. On the other hand to remove the thumb which is being sucked and immediately replace it with a chewable object is to re-direct the energy from one form of activity into another, from a sucking act to a chewing act, from a form of activity which is appropriate to a developmental stage which is gradually being left behind and towards an act which is appropriate to the next developmental stage. Great patience and perseverance is required to carry this out successfully.

Even within the first nine months the sucking-feeding instinct undergoes 'complication and modification' because several case histories record the fact that the baby has started thumb-sucking within the first month or two and at 7-8 months is still thumb-sucking *but only when tired or going to sleep.* This now has little, if anything, to do with any defect in the feeding routine which might have been the original cause of the thumb-sucking, but the need now is for a sense of comfort and security, and substitute sucking promotes these feelings. Under these circumstances the correction of the original maladjustment, if it is still present, is necessary, but this correction will be insufficient to bring about a cessation of the thumb-sucking, and re-direction of the sucking activity into chewing activity is indicated.

Interesting supporting evidence that some form of substitute or artificial sucking does promote feelings which are similar to those experienced at the mother's breast is the behaviour of the calves feeding on the nipple feeding device described in Part II. The calf feeding from its mother will instinctively bunt the udder repeatedly with its head when it is coming to the end of its feed and the calves being artificially fed by the nipple-feeding device have been observed to do exactly the same thing.

It is sometimes claimed that the dummy provides a useful method of re-direction in the young infant and some consideration must be given to its use. There is much to be said against the use of the dummy but there is also much to be said against the thumb, if sucked persistently. It is often suggested that the dummy is the lesser of two evils because it has the great advantage of being an external thing to which access can be controlled and thus, with careful handling, the infant can be gradually weaned from it.

Although all pediatricians seem unanimous in their condemnation of the dummy, it is usually condemned without any consideration being given to the infant's age, feeding conditions, whether breast-fed or bottle-fed, its emotional circumstances or general environmental conditions. The age of the infant, for instance, is very important, for measures which might be desirable at three months could be hopelessly wrong if adopted a year later. Sucking is a natural and instinctive act to be indulged in until about 9 months of age. If it is indulged in after this time, whether the sucking is at a dummy, or a thumb or anything else, then it is a carry-over from the previous stage of development. This, of course, is very undesirable.

From the physical point of view, the question arises as to whether the use of the dummy causes malformation of the developing jaws. There is the risk of this; but the risk is very small if the dummy is used with the proper

technique, with certain safeguards and only in the pre-weaning stage. In any event, it will only be used as an alternative to thumb-sucking, and there can be no doubt that if the choice between an active force such as a thumb, operating on the developing jaws, or a relatively passive force, such as a dummy, then the dummy is the lesser of the two evils. When the dummy is used for any length of time in the post-weaning period, however, extensive malformation of jaw may result as reference to Figs. 4 and 5 will show.

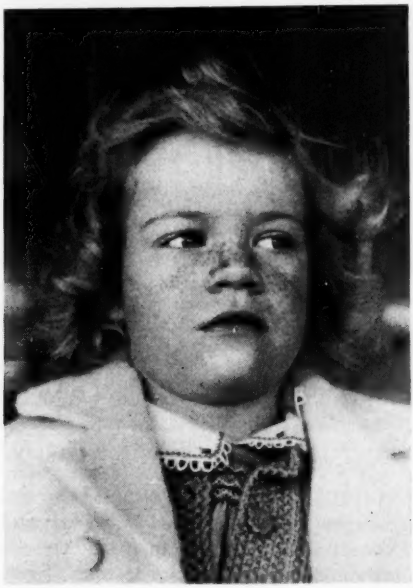

Fig. 4. C.R.W., now aged 4½ years, who used a dummy persistently till she was 4 years old.

Perhaps the greatest objection to it though lies in the possibility of its use without first making a careful diagnosis, and correcting every ascertainable fault associated with the feeding routine. Only after these measures have been taken, and the thumb-sucking still continues, could the use of the dummy be even considered, for otherwise it would provide an all too easy way of keeping the infant quiet. It would mask an underlying maladjustment, but do nothing to correct it. It will be seen then that the use of the dummy could only be approved in very rare cases, and even then only under the strictest supervision as to its method of use, and this preferably by having the infant admitted to a mothercraft training centre.

Close attention must be paid to satisfying the baby's widening sphere of interests as he grows older. For instance, suitable toys such as rattles, rings, coloured beads, etc., should be provided with which he can practise movements with his hands and eyes as his sleeping hours decrease, and care must be taken to provide him with more companionship so that he will not be left alone for long periods of time in his pram with nothing to do. It is then that he

would tend to be thrown back upon himself and would find it easy to turn to thumb-sucking, instead of having his attention directed outwards. If the necessary precautions and careful planning are carried out, the infant's horizon will widen quite naturally and infantile acts will drop away as he grows older.

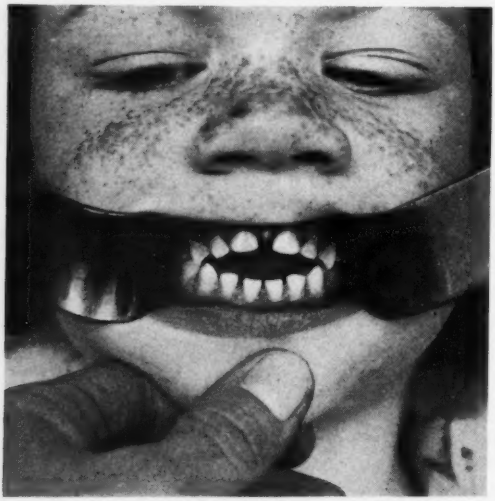

Fig. 5. C.R.W.'s extensive open bite caused by persistent and prolonged use of a dummy.

The principle is similar to that involved in wrapping the very young baby up closely, so as to present some difficulty to its getting its hand to its mouth.

If there is an urgent need to suck, no close wrapping or attractive toys will deflect the infant's attention from his thumb but if the feeding balance and general environment are satisfactory attention can easily be deflected from the thumb.

If now the baby's feeding and general environment are well-adjusted it is probable that his substitute sucking, as it might be called, will very soon be given up, or better still—never started. The important point is that it will be given up before the act becomes set into a habit. The older the infant becomes with the conditions giving rise to the thumb- or finger-sucking uncorrected, then the more studied, the more set and the more selective the act becomes, until by the age of two years, if still persisted in, he will almost certainly suck only one particular thumb or finger of one particular hand, and with one particular technique. By this time it has become a most difficult psychological problem.

It is obvious, therefore, that the primary aim should be to prevent the habit from developing, and to this end, if observations reveal that thumb- or finger-sucking is indulged in, then that should be the signal to examine immediately all feeding and other environmental conditions in order to discover and correct the underlying maladjustment.

The handling of the problem in the young infant can be concluded by stressing the need for perfecting the weaning technique. The weaning of an

infant is an important stage in its life, and particularly so if there is a tendency for an infantile habit to be carried over. The technique should be carefully planned on expert advice, and it should be carried through in such a way as to cause the minimum disturbance to physical and mental processes. If this is done, then sucking actions should be dropped quite naturally and, included in these, is any tendency to finger- or thumb-sucking. If success is achieved at this stage, then it is probable that, even if finger and thumb have been indulged in previously, little or no damage will result to developing jaws and teeth.

Immediate Post-Weaning Period.

This is probably the most difficult time to handle the thumb-sucker. There is no convenient instrument to use for his re-direction; he is not yet old enough for explanations or reasoning; consequently, we cannot look for any self-help from him. He should, by now, have dropped his sucking impulses and their place should be taken by biting impulses. His teeth are starting to erupt and this does offer a most hopeful means of encouraging his natural transition from the one stage, which is characterised by sucking activities, to the next stage which is characterised by biting activities. Every encouragement, therefore, should be given for the development of his chewing and biting tendencies. All Mothercraft books stress the need for introducing such things as rusks, toast crusts, and food requiring chewing, and these techniques should be carefully followed, not only in the interests of stimulating the healthy growth of jaws and teeth, but also because it directs attention and energy towards an act which is consistent with the present stage of development, and away from the previous, outgrown act of sucking. Suitable sterilized rubber rings can also be provided to stimulate chewing, and if the tendency is noticed for a continuation of sucking in the form of thumb- or finger-sucking, then there is need for an extra effort on the mother's part to check this tendency.

Understanding the problem, the mother will, of course, keep completely calm and prevent, at all costs, undue attention being directed to the act either by herself, her husband, or relations and friends. Fuss or obstruction or tension at this time will surely be transmitted to the child. She should give him as much company during his waking periods as she can. She should provide him with suitable toys appropriate for his age and should try to ring the changes with these so as to maintain his interest, leaving him alone as little as possible when he might be awake with nothing to do. Also, as already described, she can remove his hand from the mouth if she is careful to do this with great gentleness, and in a calm and friendly manner, and if she is able to immediately place in his hands some suitable attractive toy or other article. She may have to do this very many times a day but, if she maintains her patient and sympathetic attitude throughout, and uses the method of substitution as suggested, she will probably spend a decreasing amount of time at this task as days go by. This technique will have to be used with great discretion because feelings of fear, frustration and hate must be most carefully avoided.

The mother of Robin G. (whose Case History appears later) was advised to carry out this method of treatment. At the same time Mrs. G. was warned that great patience would be required and that Robin's hand would probably have to be replaced perhaps 100 times per day at first.

Two weeks later Mrs. G. reported a marked diminution in the finger-sucking, but she laughingly remarked that instead of replacing Robin's hand

100 times a day, as I had warned her, it had been more like 500 times a day. However, all the members of her family had co-operated and every time Robin's hand went into her mouth somebody would very gently remove it and immediately place a rusk or a toy or a peg in her hand. Mrs. G. reported that Robin showed no resentment at this treatment and the finger-sucking gradually diminished. Also, on my advice Mrs. G. made an effort to give Robin much more company than she had previously done; she tried to leave her alone in her playground as little as possible and invited some neighbouring children in to play with her.

After only two weeks of this patient treatment the sore on her first finger, which had been caused by her persistent sucking, had almost healed, finger-sucking was now taking place only when going to sleep instead of all day, as previously, her appetite was better, and her general condition and demeanour markedly improved.

The feeling of insecurity when meeting new people and facing new situations, too, will often cause the infant to turn to the pseudo-security provided by sucking its thumb. The mother can often help her infant over such periods by quite unobtrusively holding his hand or standing by him, and thus providing him with a real sense of security.

Kindergarten Period—2, 3 and 4 Years Old.

When children go to kindergarten at the age of two, to two and a half, they are very nearly of an age, and some actually are of an age, when they can be approached through reasoning. To quote Susan Isaacs[5] once again: "Children as young as these (3 to 4 years), do reason quite successfully when their interests are engaged." If now the interest of these children can be engaged with reference to their thumb-sucking habit, then in most cases they can understand if we try to substitute some other activity. Tiny children of two and a half to three, can be induced to behave very well while having teeth filled if it is borne in on their minds that it is in their own interests to do so. Admittedly, the cause and effect is not so sharp when we are dealing with thumb-sucking but, with patient persistence, the average intelligent child will come to appreciate the desirability of himself stopping his thumb-sucking habit.

This, then, is our approach to these kindergarten children: to induce in them a desire to stop sucking their thumbs; and having achieved this, to give them some specific means of re-directing the thumb-sucking into some closely related but more desirable form of activity. Visual education seems to offer the most likely means of success and probably the production of suitable photographs, of careful but simple explanations of how thumb-sucking will spoil their teeth and make them look peculiar, will help to plant the initial desire. If the child has already caused any ill-effects to his own teeth by his thumb-sucking, these can be demonstrated by means of a mirror. It cannot be stressed too strongly, of course, that this means of approach must be made alone and not in front of other children or even in front of other adults, and it must be made in the friendliest possible way, without the slightest hint of censure or reproof. It is important, also, that some new and more desirable form of activity which will appeal to the child must be available immediately. One means of re-direction of the sucking urge, which can be used either by itself or in conjunction with the simple explanations suggested, is to encourage the use of chewing gum, and to encourage as much as possible the use of hands in some activity such as games requiring the handling of toys or tools. Chewing gum seems to corres-

pond, in its use at this age, to the use of the dummy in the pre-weaning period. It has the great advantage that it exercises the muscles of mastication and stimulates healthy growth. It provides very little sugar and is unlikely to damage the teeth and it is certain that it would be impossible to suck the thumb and chew gum at the same time. Objections may be raised that it is undesirable from an aesthetic point of view, but there seems to be so much in favour of its use, particularly with the child who is a persistent thumb-sucker, that these objections must be set aside.

The children are most likely to revert to thumb-sucking when listening to stories or when they are fantasy building, when they are idle or bored, or when going to sleep. During the first two situations they could easily be encouraged to chew gum and they would probably welcome the chance. Their sleep period, however, presents a difficulty, for it would be unwise to let them have chewing gum at that time. It might be possible to overcome this by always giving them a slice of apple to eat when they lie down, or by having the child's mother or mother-substitute sit by the cot, and perhaps hold a hand whilst he goes to sleep. The idea would be to provide that sense of security which the child might need and to provide it in reality instead of in fantasy, which is all that thumb-sucking does.

Post-Kindergarten Period—School Children.

If thumb-sucking is still indulged in after five years of age, it has probably become firmly rooted in the child's make-up by faulty handling on the part of parents and friends. At this stage there is usually little difficulty in discussing the matter quite openly with the child himself. Once again though great care must be taken to avoid any suggestion of censure or reproof. If he is taken carefully he will probably admit that he would like to give it up and, with the crystallization of his desire in this regard, a big step towards breaking the habit has been achieved. Once he realises that one's desire is to help and encourage him to achieve something which he wants to do, he will usually co-operate very readily in any means suggested. He can usually be easily informed and convinced of the need for breaking the habit and, with the establishment of an atmosphere of friendlines and encouragement, there remains only the need for providing him with the means of re-directing what has now become an extremely deep-rooted and powerful urge. The initial favourable atmosphere is all important, but this alone will not be sufficient for, however much the child might want to conquer the habit, he should always be provided with some other more desirable form of activity into which his thumb-sucking energies can be re-directed. If this is not done, he will either forcibly repress his desire to suck his thumb with resulting mental disturbance later on, or he will give up his thumb-sucking and regress still further to some such habit as nail-biting.

The encouragement of the chewing gum habit seems to offer the most likely means of success. It provides that "incompatible tendency" of which McDougall[11] speaks. Most children thoroughly enjoy chewing gum and, within reason, the more they indulge in the habit, the more are they encouraging jaws and muscles to healthy develpment and, at the same time, shutting out an undesirable habit. The child can be told why he is being encouraged to use

chewing gum. He can be provided with the gum and told to use it whenever he feels the urge to revert to his thumb.

It will be seen that in the case of the older children the whole secret of success is in bringing out in the child himself the desire to break the habit, in building up his morale with kindliness and encouragement and with providing practical specific means for re-directing his energies.

9. Parent Co-operation.

Certain fundamental principles must be observed in the treatment of thumb-sucking at any age, although, as we have already seen, there are specific lines of treatment applicable to different ages. It is of great importance that parents should understand not only the nature of the act but also the principles upon which methods of treatment are based.

Parent education, then, is a *sine qua non* for the successful guidance of the growing child so that he will be properly adapted at the various stages of his development and so that he will live through the experiences which are characteristic of the various ages through which he passes. In this way he will, as he leaves infancy behind, naturally outgrow infantile habits and practices; and one of these, of course, will be the infantile practice of sucking.

A broad principle which should be recognised at this stage is that the thumb-sucking involves no moral issue. There is no question of it involving either "naughtiness" or "goodness", and, consequently, in handling it there should be no question of using anything which savours in the least of punishment. It would be wrong, too, to force an issue of obedience in connection with the act, such as ordering the child to refrain from sucking his thumb and expecting unquestioning compliance with such an order.

Susan Isaacs quotes Dr. Ernest Jones (Psycho-analysis 1928, Page 57) as saying:—"The more a child's development comes about through its interests and affections, rather than through moral training, the less sharp are the unavoidable conflicts and their consequences." She herself lays great stress on the need for patient understanding and sympathy on the part of the mother, and this patient friendliness is needed in the problem we have under consideration. She must know that, if either she or her husband is harsh or hasty in their approach, this is one way to bind the child to his infantile ways. She points out that the child who goes in fear of scoldings or naggings, cannot go without fear into the social life. He is thrown back upon himself and upon his infant's ways of gaining love by his helplessness or infantile habits. It is generally recognised that fear of whippings and severe punishment will have these evil effects, but it should be clearly realised, also, that fear of nagging and harsh criticism may be just as harmful and paralysing to the sensitive child.

This, then, leads us to the final broad principle which should be observed, and that is that no obstruction or punishment should be used in the handling of thumb-sucking, but patience, friendliness and careful re-direction of the urge.

TUMOUR OF THE SOFT PALATE.

CASE REPORT.

K. K. Stringer, M.D.S.* and Paul Gerard, B.D.S.†.

The following case is presented because of the comparatively rare occurrence of tumours of the soft palate, and also to emphasise the importance of histopathological examination of all neoplastic or other doubtful lesions in the oral cavity.

The patient, a female, aet. 31, was attending the Ante-Natal Clinic, and a swelling of the right side of the soft palate was noticed during the routine dental examination. She was 28 weeks' pregnant, fifth pregnancy. Family history—nil relevant. General history—no previous operations or serious illnesses. Severe crippling pain in right hip and right leg which at times became paralysed —6 months. Blood pressure within normal limits. Heart sound physiological.

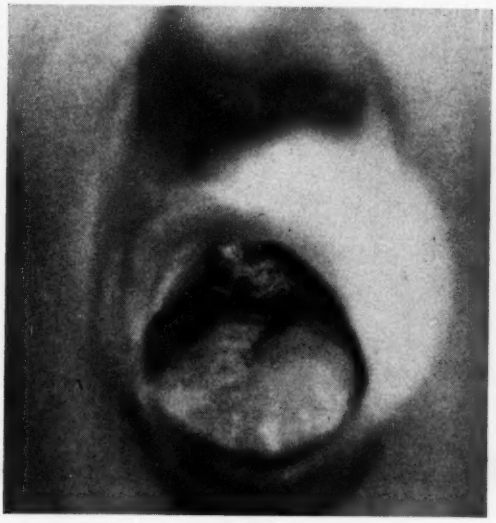

Fig. 1.

Uniform soft enlargement of the thyroid gland; had lived for several years in a town known to be in a "goitre district." Noticed slight dysphagia since living there.

Had worn a full upper denture 12 years and the only remaining teeth were $\frac{43.1}{}$ | $\frac{1234}{}$. These were carious and X-ray of the supporting bone showed alveolar resorption.

The "lump" in the soft palate had first been noticed eight years previously and had progressively increased to its present size. There was no ulceration of the surface and the mucosa covering the swelling was normal. No lymph

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glands were palpable. The mass was freely movable in the surrounding tissues and of a "rubbery" consistency. The fauces were otherwise normal, except that the right side appeared more injected than the left. No pain from the tumour but at times there was an "itchy" feeling, especially if the patient "had a cold." She frequently had attacks of laryngitis. A provisional diagnosis of a mixed tumour was made and the patient admitted for further examination and removal of the remaining teeth.

I.M.I. Penicillin 100,000 units eight hourly and Benadryl 50 mg.t.d.c. were given after admission. On 16/11/49, under intra-tracheal ether anaesthesia, the teeth were first removed and the decision was then made to remove the

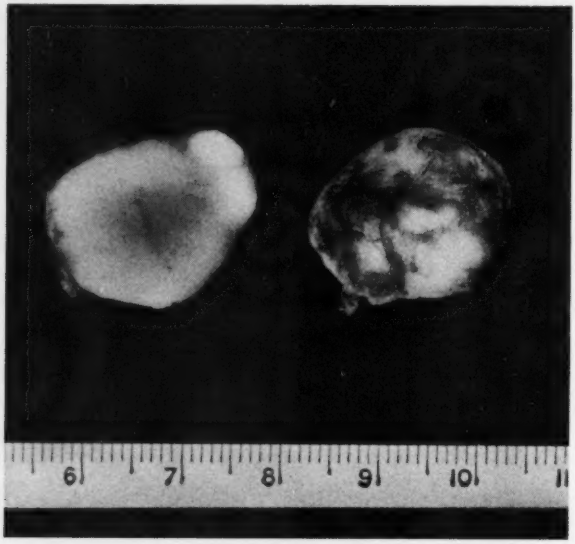

Fig. 2.

tumour immediately. The naso-pharynx was packed from below with gauze. This procedure pushed the soft palate forward, at the same time immobilising it and bringing the tumour prominently into view. A vertical incision was made in the mucosa overlying the tumour mass and, by blunt dissection, the entire growth was readily removed from the surrounding tissues. The soft palate was not perforated and the wound after being liberally dusted with sulphanilamide-penicillin powder was closed with catgut sutures. (See figure 1.)

Post-operatively, there was a slight oozing for 12 hours, with ecchymosis into the right-palatal tissues. On the fifth post-operative day an autophonia developed, with pain in the middle ear on the left side. By the eighth post-operative day this had disappeared, there was no slough on the wound, no pain

or difficulty in talking or swallowing, and the soft palate was freely mobile with normal movement. Patient discharged for follow-up examination in three months.

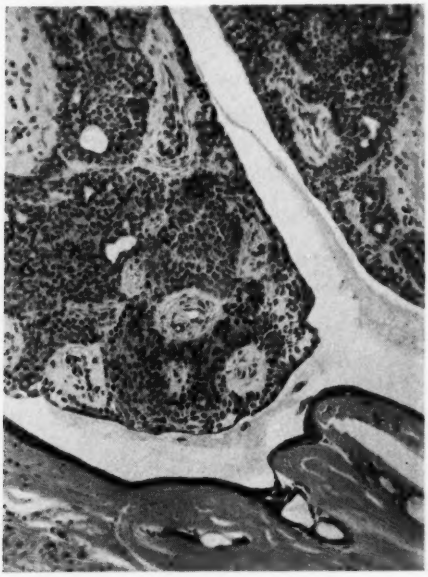

Fig. 3.

HISTO-PATH. REPORT:

Macroscopic: The specimen consists of an ovoid piece of tissue about 2.3 cm. in diameter. It is not covered by mucosa. The cut surface resembles cream coloured tumour growth but with yellowish flecks of necrosis. (See figure 2.)

Microscopic: The tumour is formed of many large irregular masses and strands of epithelial cells embedded in connective tissues. The cells are fairly regular in size and shape but some nuclear-hyperchromatism is present. In some parts it appears that the tumour cells tend to form minute lumina. In the greater part, however, the tumour cells form large solid masses. The stroma is mainly dense and hyaline, although in other parts it is fibrous and in some parts oedematous. In occasional small areas the epithelial cells are spread out and embedded in a loose matrix and the appearance here is similar to that seen in some mixed parotid tumours. The tumour is probably derived from glandular structures in this region. It has some resemblance to tumours from mucous glands of the palate which in turn have some resemblance to

mixed tumours of salivary glands. The histological characters suggest that the growth is not altogether benign, although it is difficult to estimate the exact grade of malignancy, but this is probably not very high. The sections have been seen by Professor Inglis, who is in general agreement with this report. (See figures 3 and 4.)

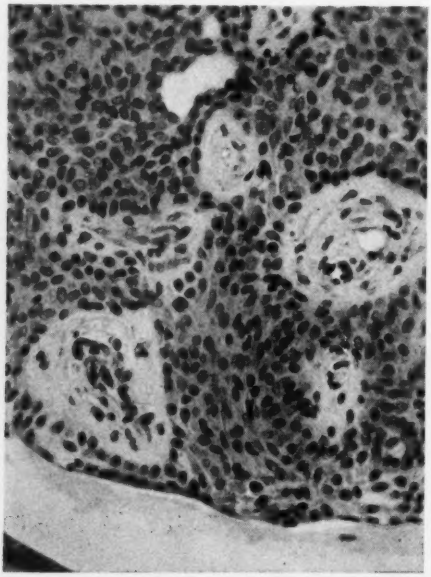

Fig. 4.

DIAGNOSIS:

Soft-palate carcinoma with some resemblance to mixed tumours of salivary glands. Grade of malignancy may not be very high.

ACKNOWLEDGEMENTS.

Our thanks are due to G. F. S. Davies, Morbid Anatomist of Royal Prince Alfred Hospital for his report, and to R. Johnson for the photographic illustrations.

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The DENTAL JOURNAL of AUSTRALIA
N.S.W.

EDITORIAL DEPARTMENT

DENTURES FOR THE MILLIONS.

The appearance of a dramatic headline in the daily press should always lead one to suspect the material it seeks to propound.

Unfortunately, when an article on a special subject is prepared for popular consumption, there is a danger that its translation into a palatable form may unwittingly change its story and distort its factual content.

It is, of course, a simple matter, if the writer is so disposed, to present a story which appears to be an informative and authoritative dissertation and which to the uninformed is a beacon pointing its brilliant finger of light out into the dark, inhospitable social system.

Recently, *The Sydney Morning Herald, Wednesday, 12th April, 1950,* gave considerable space to a pronouncement from "a special correspondent in London" which had all the imprimatur of the familiar sugar-coated pill. The article opened with a touching human interest story and then figures were sprinkled around with great abandon—millions and percentages are always assured of attention and will always arrest the eye.

By waiting patiently, the perennial flower soon appeared and we learned that "in America, the teeth of its people are the worst on earth." The centre bulky portion of the article rambled amiably through a few juicy historical anecdotes and concluded, by a striking pianissimo, a cymbal clash on preventive dentistry.

The one outstanding contribution appeared in the subtle interpolation of the illustration from the *London Punch,* and even this would lose much of its value on the public here in Australia.

There is no indication in this article of how the costs of this section of the British Health Plan have reached fabulous dimensions, of the method the government used to get the scheme into operation in the face of considerable opposition from the organised profession, of the intervention of lay personnel in professional matters where trained opinion is essential in the interests of the health of the patient, of the lengthy delays confronting many patients who seek treatment under the service, of the fact that the plan, though it may be politically expedient, is scientifically ill-founded and economically unsound in that it provides dentures for octogenarians whilst the teeth of the rising generation are relatively neglected.

In looking at the scheme dispassionately, it should be recalled that: (1) the basis of service is a fee for service and has been designed on the Spens report; (2) the Spens report was prepared on the expectation of 1,500 hours work per year; since the service is available for all, practices in industrial areas are completely inundated with applicants and a dentist's thirty-three hour week is simply a quixotic fantasy. The costs to the country were by no means a fantasy and the government immediately checked costs by limiting incomes of dentists to a fixed monthly sum and, subsequently, a 20 per cent. reduction was introduced in all fees.

Without labouring this point further, it can be said that, if dental fees do not adequately compensate the dentist for his work, the natural tendency will be to slight the quality of the work, especially if the reward is further restrictions on one's income; (3) the change in fees occurred after more than 90 per cent. of the dentists had entered the service; (4) lay personnel [The Dental Estimates' Board] to the total of some 700 clerks and 7 dentists (not all of whom are engaged full-time) have in their hands the power to grant or withhold approval on a professional diagnosis (dental estimates pour in at the rate of approximately 10,000 per day).

From the patient's immediate personal angle let us examine the implications contained in the situation created by the Dental Estimates' Board. If we study conditions in the industrial practice and the mixed middle-class practice, we will find two vastly different types of reaction. In the industrial practices which deal with large numbers of the population, the dental conditions may be treated most expeditiously by extractions and dentures; estimates on such classes of work are delivered with the minimum of delay (ten days to a fortnight).

In the mixed middle-class practice, where the work is largely conservative in nature many of the patients have previously received regular dental treatment. Under the service the fees are adjusted to ensure that this type of practitioner can continue to provide conservative treatment on a balanced basis without recourse to extensive denture service to provide an adequate income. Treatment can be completed in such cases for "ordinary" restoration, without having to submit an estimate; an estimate form could be completed subsequently for approval and payment. The large increase in the number of patients, however, meant delays in completing treatment on individual patients and, consequently, in receipt of payment.

Where the service has proved a serious disappointment is in such practices because there is considerable form-filling and delay when other than silicate or amalgam restorations are made. This delay may reach as much as six weeks before the estimate is approved. In many cases "the Board requires an examination by a Ministry dental officer" and this results in still further delay which may be extended to two or three months before the estimate is approved. The dentist who is conscientiously attempting to give his patients the benefit of a wide range of dental treatment finds that he is spending considerable time in correspondence with the Dental Estimates Board which is "far more cautious about accepting his clinical judgment than it is about accepting the clinical judgment of the dentists who are submitting estimates for the 16,000 cases of extractions and dentures which are authorised every day." The results of such an arrangement are all too patent. Human nature does not vary from the

lowliest to the highest but the degree of mental placidity achieved is dependent upon the ability to rationalise one's actions, irrespective of whether the subject is Britain's Aneurin Bevan or the practitioner who has found himself in the economic mire.

What the *Sydney Morning Herald's* Special Correspondent failed to enlighten his readers on is the appalling blunder created by placing the emphasis on the wrong group of patients, thereby reducing the opportunity for provision of dental treatment for children. Though no doubt this latter group has not attained the age of vote-casting, it is, however, the nationally important group in the community.

Prior to the introduction of the Health Service, the School Dental Service provided treatment for the school populations. Salaries were not high, but there was the attraction of a steady income and a pension on retirement. Since the introduction of the general dental service has given both these advantages to a general practitioner and the newly qualified dentist without any experience can command in private practice a "salary very much higher than he could ever hope to attain after twenty to thirty years in the School Dental Service," there has naturally been an exodus from the School Dental Service; a large number of school clinics have been closed, resulting in a *"denial of adequate dental treatment for a considerable proportion of the school population."*

Associated with the School Dental Service breakdown are the maternity and child welfare dental services. This is therefore a great and most tragic failure of the new Service.

It seems clear that the tremendous political value of the success of the scheme will overshadow any criticism which may be raised against it, for it must be remembered that, though a Labour Government introduced the scheme, the Conservative Party gives it tacit support.

The lifeblood of dentistry in Britain would appear destined to be shed for the sake of Mr. Bevan's political ambitions.

A rational approach to the problem, tremendous though it may be, would seem to have been capable of implementation without the disastrous results which cause a comment such as this to appear so early after the introduction of the service; we quote from *The Practitioner, Autumn,* 1949: "It is fair to say that the high hopes of being able to provide for their patients the best dentistry of which they were capable, with which many members of the profession entered the service, seem unlikely to be fulfilled and, as the result of experiences in the first year, the fear is rapidly growing on all sides that the service will, in fact, deteriorate both in quality and in the range of treatment which will be permitted, with deplorable results to the dental health of the nation and to future generations of practitioners in the art and science of dentistry."

The little boy of whom Punch has to say: "Please may I have it—or does it belong to the Government?" could quite as easily have been referring to his soul.

News and Notes

OBITUARY.

VINCENT JOHN MCFARLANE, D.F.C., D.F.M.

The late Flight-Lieutenant McFarlane, after active service in the United Kingdom, Canada, Middle East, Lebanon, Italy, France, Belgium, Holland and Germany, returned to civilian life and commenced his studies in 1946 in the Faculty of Dentistry. During the final year of undergraduate career he was President of the Sydney University Dental Undergraduates Association, and was successful in all the examinations necessary for the degree of Bachelor of Dental Surgery. Unfortunately his sudden and unexpected death on 21st January, 1950, prevented his receiving the degree. We record, however, with pleasure, that the Senate of the University of Sydney, at its regular meeting on Monday, 6th March, conferred the degree posthumously.

DAME CONSTANCE ELIZABETH D'ARCY.

The death occurred recently of Dame Constance Elizabeth D'Arcy, renowned gynaecologist, at the age of 70 years.

Dame Constance had a distinguished career in the field of medicine from the date of her graduation at Sydney University in 1904. She was appointed honorary consulting gynaecologist to St. Vincent's Hospital, Sydney, in 1923, and retained this position till her death. She also carried out the duties of consulting surgeon to the Royal and Rachel Forster Hospitals for Women and was a member of the Conjoint Board of the Royal Hospital for Children.

At the University of Sydney, Dame Constance held high offices, having been elected a member of the Senate in 1919, and appointed Deputy-Chancellor in January, 1943. Her capabilities as a teacher were recognised when she was appointed lecturer in clinical obstetrics at the University in 1925.

For her services to medicine and to charity, this outstanding woman was made a Dame Commander of the Order of the British Empire in 1935. The medical profession in Sydney has sustained a great loss in the death of Dame Constance D'Arcy.

HONORARY DENTAL SURGEON.

The services of an Honorary Dental Surgeon are required for a dental clinic which is at present undergoing establishment at St. Joseph's Home for Boys, Kincumber.

The Home at present accommodates approximately one hundred boys whose ages range 7-15 years.

It is planned to establish a suitably equipped clinic and members interested in the project are requested to communicate with J. Egan, FU5762.

DENTAL PRACTICE AND HOUSE FOR SALE.

Suburban dental practice with house for sale, on north side of Harbour. Direct transport to city. Opposite school. Apply in the first instance to the Editor.

AUSTRALIAN DENTAL ASSOCIATION
STANDARDS COMMITTEE.

The initial list of accredited products will be issued on the 1st July, 1950. Manufacturers and Importers of Dental Mercury, Dental Amalgam Alloy or Zinc Phosphate Cement who wish to apply for accreditation on that date should lodge applications prior to 1st June.

It has been pointed out that certain materials which satisfy the technical requirements of the standard do not fulfil the clauses relating to packaging and manufacturers' instructions. Further, owing to the industrial situation, it will be impossible to make the necessary adjustments immediately.

The Committee hereby advises those concerned that for the next twelve months it will not necessarily withhold accreditation, solely on the grounds of inadequate instructions or packaging.

147 Collins St., Melbourne, C1.

EASTERN SUBURBS SPORTS DAY.

LAKES GOLF CLUB, SYDNEY, 16TH MARCH, 1950.

COMPETITION WINNERS.

PAR HANDICAP:

Winner: J. Moroney, square.

Runner-up: D. Shilland, 4 down, won on count back.

"A" Grade 1 to 11: T. Royce-Smith, 5 down.

"B" Grade 12 to 15: C. Hughes, 6 down.

"C" Grade" 16 to 18: W. Byrne, 4 down, won on count back.

FOURBALL BEST BALL:

Winners: J. Hallinan & J. Moroney, 5 up.

Runners-up: J. E. McGovern & K. Callen, 2 up.

LONG DRIVE: A. G. Lumley.

PUTTING: T. Richards.

BRADMAN'S SCORE: A. Barnett, won on count back.

BOWLS:

Winners: T. Purtell, N. Taylor, A. French, R. Reid.

Runners-up: J. Moore, W. R. Buchanan, W. Gray, F. Hutchinson.

During the day a raffle was held in order to augment the Benevolent and Provident Fund of the Association, and the proceeds amounted to £11 17s. 6d.

Association Activities

AUSTRALIAN DENTAL ASSOCIATION.

(NEW SOUTH WALES BRANCH)

GENERAL MEETING.

Minutes of General Meeting of the Association held in the Lecture Hall, B.M.A. House, 135-137 Macquarie Street, Sydney, on Tuesday, 28th March, 1950, at 8 p.m.

Present: Dr. E. R. Magnus, President, in the Chair, and an audience of 98 members and visitors.

Apologies: Messrs. A. A. Allen, N. E. Edney, R. G. Leeder, J. Lyell, and I. Traill, and Drs. C. Graham, R. Lane, and J. V. Hall Best.

Minutes: The Minutes of the General Meeting held 25th October, 1949, and the Extraordinary General Meeting held 22nd November, 1949, were read and signed as correct records.

Welcome by President: The President welcomed members to this first meeting of the year and, in particular, all new members present.

Mr. Cunliffe congratulated: On behalf of the Association the President congratulated Mr. Adrian Cunliffe who had today received the news that he had been admitted to the Master of Dental Surgery degree.

Dr. E. C. Gates Honorary Member: The President intimated that, in view of the many years' service Dr. E. C. Gates had rendered to the profession both as a member of the Faculty of Dentistry and of the staff of the Dental Hospital, the Executive Committee had recommended that he be elected an Honorary Member.

It was resolved that Dr. E. C. Gates be elected an Honorary Member of this State Branch.

Letter from Mr. McKegg: A letter, dated 11th March, 1950, from Mr. Amos McKegg, the President of the New Zealand Dental Association, who is an Honorary Member of this State Branch, was read regretting his inability to be present when such a fine lecturer as Dr. Adamson is the guest speaker.

Telegram from Southern Division: A telegram conveying greetings to Dr. Adamson from the Southern Division was also read.

Dental Assistants' Award: In reply to an enquiry from Mr. Coulter, it was stated that there was no provision at the present time in the Dental Assistants' and Secretaries' (State) Award for the employment of dental nurses on a part-time basis.

Lecture by Dr. K. T. Adamson: In introducing the lecturer for the evening, the President stated that Dr. K. T. Adamson, who is the Senior Lecturer in Orthodontics at the University of Melbourne, had previously delivered very interesting lectures to this Branch and would, he felt sure, have something worthwhile to say on this occasion.

Dr. Adamson thanked the President and members for the invitation to lecture and also those members who had entertained him, and stated that he was very pleased to learn of the letter from Mr. McKegg and the telegram from the Southern Division.

In opening his lecture, which was entitled "Orthodontic problems for the general practitioner," Dr. Adamson stated that it was not easy to condense such a large subject for a single lecture. However, with the assistance of a number of slides and carefully prepared film, he hoped to inspire his audience to follow the principles which he would lay down.

At the conclusion of a most informative and excellently prepared lecture, Dr. Thornton Taylor opened the discussion, followed by Dr. Lawes, who raised certain controversial points related to thumb-sucking, and Dr. Adamson replied to the points raised by the two speakers.

Dr. R. M. Kirkpatrick moved a vote of thanks, which was carried by acclamation.

The meeting terminated at 10.30 p.m.

EXECUTIVE MEETING.

Extract from the Minutes of the Meeting of Executive Committee held in the Council Room, B.M.A. House, 135-137 Macquarie Street, Sydney, on Monday, 13th March, 1950, at 7.30 p.m.

Present: Dr. E. R. Magnus, Dr. A. G. H. Lawes, Dr. F. E. Helmore, Dr. R. M. Cloutier, Mr. N. E. Edney, Mr. H. M. Finnie, Mr. W. A. Grainger, Mr. R. Krauss, Mr. R. G. Leeder, Mr. R. Y. Norton, Mr. F. R. Reid, Mr. J. W. Skinner, Mr. H. R. Sullivan, Mr. Ralph Tompson, Mr. C. D. Reynolds, Dr. J. Oddy, Dr. A. G. Rowell.

Apologies: Dr. J. V. Hall Best, Dr. J. D. Benson, Mr. L. Mackenzie, Mr. S. H. Neal.

In attendance: Mr. Robert Harris, Secretary.

Minutes: The minutes of the meeting held 23rd January, 1950, were signed as a correct record.

Business Arising from Minutes:

Vacancy on Executive Committee: The President reminded the meeting that Mr. E. H. Bastian had previously asked for leave of absence from Executive Meetings and that this had not been granted. The President pointed out that a precedent had been established whereby the nominee who had received the greatest number of votes amongst the unsuccessful candidates at the last election for the Executive Committee automatically succeeded to any vacancy. In this case Mr. R. W. Wilson was eligible for appointment.

It was resolved that Mr. R. W. Wilson be appointed to the Executive Committee in place of Mr. E. H. Bastian.

Report from the Committee of the Honorary Officers:

Scale of charges for Repatriation patients: The President stated that the question of charges to be made for the treatment of Repatriation patients had originally been raised by the Southern Division and that the Honorary Officers had recommended to the Federal Office that representations be made to the Minister for Repatriation that this dental treatment be carried out on the same scale as that previously recommended for the treatment of military personnel by civilian dentists.

It was resolved that the action of the Committee of the Honorary Officers be endorsed and that the matter be brought up at the next Federal Council meeting.

Dental Mechanics' log of claims: Mr. Edney reported that, following the circulation of the Application to the Conciliation Committee, a further conference relative to the Dental Mechanics' log of claims had been held and as agreement had not been reached in regard to overtime, sick leave, and wages, the whole matter would now come before the Conciliation Commissioner on Thursday, 23rd March, 1950.

Considerable discussion ensued as to the wording of the clause relative to sick leave and the necessity for the inclusion of words to make it necessary for the employee to present a medical certificate for an absence of more than three consecutive days.

Report from Committees:

Dental Health Education: The Chairman of the Dental Health Education Committee, Mr. Tompson, reported that the prize had been awarded in the Duntroon Dental Essay Competition and that the Education Department had approved of the suggestion that a book of instruction be provided for the use of teachers in State Schools relative to dental hygiene, preparation of which is now being considered.

In this latter connection the need for the Government to provide some financial assistance towards the cost of production was stressed. Mr. Tompson also reported that plans were in hand for a new folder giving general advice on dental health subjects, that plans were well under way for recorded versions of Family Dentist broadcasts, and that an Activities Sub-Committee had been appointed to investigate the possible extension of dental health activities and a report on this subject should be available for the April Executive meeting.

It was resolved (1) that this report be received; (2) that representations be made to ascertain if any financial assistance relative to the book of instructions can be obtained through the Education and Health Departments.

A letter dated 27th February, 1950, from the Dental Board of New South Wales, was read advising that the Board had approved a grant of £150 to the Dental Health Education Department. It was noted that the previous grant was £400.

Divisions: The Chairman of the Divisions Committee, Mr. Krauss, reported that the Blue Mountains Division had held a very successful meeting on 11th March, 1950, at which elections of office-bearers had been held. Dr. Lawes and Dr. Helmore were both present at the meeting.

A letter dated 15th February, 1950, from the Southern Division, relative to a meeting at which three Melbourne clinicians are to be present, was read. The Secretary was directed to advise the Southern Division in response to the enquiry made that £14, which was the annual allowance to Divisions for clinicians' expenses, could be granted to assist in the payment of the expenses of the three Melbourne clinicians.

The Secretary reported that only three divisions had replied to his enquiry relative to a date for the holding of the Delegates from Divisions meeting this year, but that he would send a further letter.

Survey of Fees: The Chairman of the Survey of Fees Committee reported that work was progressing in regard to the analysis of the survey of fees forms.

Membership: The Chairman of the Membership Committee, Dr. Helmore, reported that a meeting of Fourth Year students had been addressed by the Secretary at the beginning of the Long Vacation Term, and that he hoped to complete arrangements shortly for the repetition of this address during Lent Term. It was reported that there were now twenty-six student associates.

Syllabus: The Chairman of the Syllabus Committee, Mr. Skinner, reported that, as it was Congress year, it seemed advisable to seek lecturers from other States. The syllabus, which had so far been arranged, was as follows:—

March ..... Dr. K. T. Adamson.
April ..... Professor R. V. Bradlaw.
May ..... Mr. K. Asprey—Dento-legal aspects.

With regard to the June meeting, Mr. Skinner suggested that the results of the survey of fees might be given to the members, and it was agreed that the results would have to be considered by the Executive Committee before any decision could be made in this regard.

July ..... Dr. Edwards, Psychiatrist.

In connection with the April meeting the President stated that this would be held in the Stawell Hall on 20th April, 1950, when Professor Bradlaw would admit Professor A. J. Arnott and Dr. J. V. Hall Best as Fellows in Dental Surgery of the Royal College of Surgeons, England, and, at the conclusion of that ceremony, give an address as guest speaker at a monthly meeting. The President of the Royal Australian College of Surgeons will take the Chair; Professor Dew, Dean of the Faculty of Medicine, will present the candidates; Mr. W. A. Selle will be Master of Ceremonies.

It was resolved (1) that the action taken by the Secretary and the Honorary Officers in hiring the Stawell Hall and making the necessary arrangements be endorsed; (2) that the Executive Committee entertain at dinner prior to the function notabilities and candidates, the expense incurred to be borne by the individual members of the Executive.

It was resolved that permission be granted to Mr. J. Lyell to lecture to the Newcastle and Hunter River District Division meeting to be held on 24th March, 1950.

Sports: The Chairman of the Sports Committee, Mr. Reid, reported that, owing to rain, the annual B.M.A. v. A.D.A. cricket match had been drawn.

It was suggested that, as the Annual Sports Day would not be held this year, Sir Harry Moxham should be approached for permission to allow the Moxham Cup to be competed for amongst Congress members.

Post-Graduate: The Chairman of the Post-Graduate Committee, Mr. Grainger, reported that his committee was of the opinion that the only action which could be taken this year would be to form a policy for future years, as it would not be possible to hold any Post-Graduate courses during Congress Year.

Membership:

New Members: It was resolved that the dental practitioners listed below, whose applications were in order and who had paid the requisite subscriptions, be admitted to membership of this State Branch as from the dates indicated:—

15th February, 1950.—Arkins, Errol Dudley; Begg, Stanley James; Cassim, Michael Ogden; Dawes, Burton Ernest; Ellis, Oswald George; Farrell, John Ernest; Godfrey, Keith; Hallinan, John Maxwell; Hope, Jeffrey Denbigh; James, Casper; Jolly, Mark; Keir, Ronald Ian; Kingsell, Kevin Hethersett; Laurence, John Leslie; Lowry, Ranger Steffensen; Newman, John Arnold; Penn, Charles William; Reynolds, Lionel Derek; Rijnberg, Abraham; Rowe, Donald Kirkpatrick; Scholes, Owen Geoffrey; Seifert, Zygmunt Ullrych; Sharpe, Cyril James; Thompson, Ronald Arthur; Weir, Fred Caldwell; Wood, Phillip Boyd.

8th March, 1950.—Aroney, Theo; Bourke, Kevin John; Caisley, Kenneth Henry; Cox, Neville James; Denney, John Kinley; Hodgkinson, John Allan; Martin, Cyril Sydney; Oliver, Leslie Phillip; Read, Warwick Oliver; Shayler, Robert Bruce; Young, Brian Neill; Wade, Dowel Edmund.

13th March, 1950.—Clark, Alan; McEwan, Donald Wilson; Shields, Peter Willett.

It was resolved that the following members of this State Branch be granted restricted membership:—

Dr. R. D. Cook, Miss J. Howell, Mr. R. R. Fraser.

Resignations: It was resolved that the resignations of the following members be accepted:—

Mr. A. M. McIntosh, Mr. V. Abrahams, Mr. A. W. Burton.

Deceased: It was noted with regret that Mr. A. E. M. Moore, of Carlton, had died on 15th February, 1950.

General Business:

Public Risk Insurance: The President reported that, following several conferences and correspondence, the Insurance Company had now agreed to include a clause in the Public Risk Policy covering members for damage resulting from leaking taps and faulty water pipes and that, with the inclusion of this clause, the terms of the policy had been agreed to.

Tarakan Relief Fund: It was reported that an appeal had been received from the Lord Mayor for a donation to the Tarakan Relief Fund and that the Committee of the Honorary Officers had recommended that a donation of £5/5/- be made.

It was resolved that the recommendation of the Committee of the Honorary Officers be adopted.

OFFICE-BEARERS, 1949-50

SOUTHERN TABLELAND DIVISION

President: Mr. L. Cooper.
Vice-President: Mr. S. Pinn.
Honorary Secretary: Mr. L. W. Marshall.
Honorary Treasurer: Mr. J. F. M. Barnes.
Committee: Mr. G. Cattle, Mr. M. G. Hamilton, Mr. I. S. Noble.
Divisional Representative: Mr. L. Cooper.

BLUE MOUNTAINS DIVISION

President: M. J. Griffin.
Vice-Presidents: K. S. Hutchinson and H. Weingarth.
Hon. Secretary: W. R. Buchanan.
General Committee: G. Lauder, V. Rowlings, J. Carroll.
Division Delegate: L. Mackenzie.

New Books and Publications

Oral Anatomy. Harry Sicher, St. Louis, U.S.A., 1949. C. V. Mosby Co. *By courtesy of W. Ramsay (Surgical) Pty. Ltd., Melbourne.* Price £5 12s. 6d.

An undergraduate's difficulty with Anatomy is mainly due to the extent of the terminology he is required to learn; hence care is taken with well known text books to avoid adding confusion to this difficulty.

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In "Oral Anatomy" the B.R. terminology (e.g., tensor palati muscle) may be used to describe one feature, followed by the B.N.A. terminology to describe another (e.g., pterygopalatine canal). The stylopharyngeus muscle is consistently called the stylopharyngeal but the styloglossus is not called the styloglossal though the platoglossus is called the palatoglossal. The palatopharyngeus is spelt both ways (371 and 511). This is poor enough but there is much worse.

A pterygopalatine groove is defined as one thing on page 48 and yet again as quite another thing on page 78. On page 79 the second thing suddenly becomes a fossa. Subsequent reference is variable.

The infratemporal fossa is referred to on pages 31, 49, 71, 75; but not until page 78 (if the index is to be trusted) is it defined and then immediately afterwards spoken of as an important "groove." Thereafter it may be referred to as groove or fossa and, to make matters worse, each is separately referred to in the index. A retromandibular fossa and a retromandibular groove are mentioned a dozen or so times and seem to be some posterior extension of the infratemporal fossa but much is left to the reader's imagination. Perhaps they are defined somewhere in the 500-odd pages but the reviewer's patience gave out with the index. On page 78 the infratemporal "groove" is stated to include the pterygoid muscles, but on page 412 a "pterygomandibular space," spoken of as existing between the pterygoid muscles, is said to communicate posteriorly with the infratemporal groove.

On page 281 the "Acoustic tube" is referred to and on the following page, without explanation, it is called the eustachian tube, auditory tube, pharyngotympanic tube, and then again as just "the tube." Finally on page 293 it is called the tympanic tube. All these synonyms are referred to in the index, as though they were separate entities, each having individual page references.

The treatment of the muscles of the palate would appear confusing and even misleading to the uninformed.

The inclusion in the last part of the book of specialised applied anatomy would supply a need and warrants more careful treatment. Probably every published work has some value for those who are sufficiently informed to be critical, and "Oral Anatomy" may contain some points for such people who are in addition patient and persistent readers.—A.C.G.

Dental Practice Management. By S. L. Drummond-Jackson, London. *Second Edition.* Staples Press. Price 30s. net (Eng.). *Our copy by courtesy of the publishers.*

The advent of this book in its second edition is very pleasing for readers as formerly, in this country at least, there has not been the opportunity of having a writer conversant with English practice publish a book on practice management for some years.

The method of approach is excellent, especially if the reader happens to be a young graduate entering practice either as a principal or as an assistant to a practitioner.

A careful study of the work will reveal considerable information relating to partnership, assistantship, and the sale and purchase of practice agreements based upon current English legal practice, and much of this is directly adaptable to Australian conditions. Important information is given in the sections on the purchase of the practice, relating to the question of leasing the premises and the subject of insurance, both as an investment, a protection for one's dependents and insurance against professional risks, is adequately treated in a way which will be most useful to the young practitioner.

Some interesting information has been given in regard to the general management of the practice, particularly in relation to the control of patients, the promotion of practice growth and various types of recall systems.

Something which is undoubtedly a new concept in this country is the suggestion that practitioners should develop a maintenance service based on a period of two years. The idea behind this is that the maintenance of all conservative and prosthetic work, unless in special cases and otherwise stated, shall be free for a period of two years. The author suggests that, if the scheme is approached fairly and with discretion, the service is ethical, practical and profitable.

At a cost of some time and little material the prestige of the practitioner is greatly enhanced and many patients are retained who might through external circumstances leave the practice. Further, it is suggested that the collection of accounts is greatly facilitated and, in addition, the opportunity to service the mouth constantly in this two-year period not only is a stimulus to the practitioner's own work, but also affords him a chance to gauge the patient's co-operation.

Clearly, such a system would have to be carefully operated, otherwise it would lead to all sorts of abuses, particularly in regard to certain phases of prosthetic dentistry.

The chapter devoted to recall system is one which could with the greatest advantage be read by many practitioners, beginners or of long standing. There appears to be a trend these days for recall systems to be developed on a card-index system. The impersonality of such a method will not be lost on many thoughtful patients and it is far better to adopt a suitable form of letter which has the attributes of a personal appeal to the patient and, in a majority of cases, will be far more effective than a card system.

There are some useful sections of the book devoted to organising the routine work of the dental chairside assistant and again it is felt that this is a distinct advantage to the young practitioner who has not had the opportunity of taking upon himself the responsibility of organising staff, even though it may be one assistant, to assist him efficiently in his daily duties.

The author has wisely thought fit to suggest to the young practitioner that there will be times when he is not fully occupied providing treatment for patients and offers suggestions as to how this time can be usefully employed.

Altogether, the book can be looked upon as a useful adjunct to the literature on the question of dental practice management.—R.H.

The Year Book of Dentistry. Various Editors. *Published by the Year Publishers, Chicago. By courtesy of the Publishers.* Price 5 dollars.

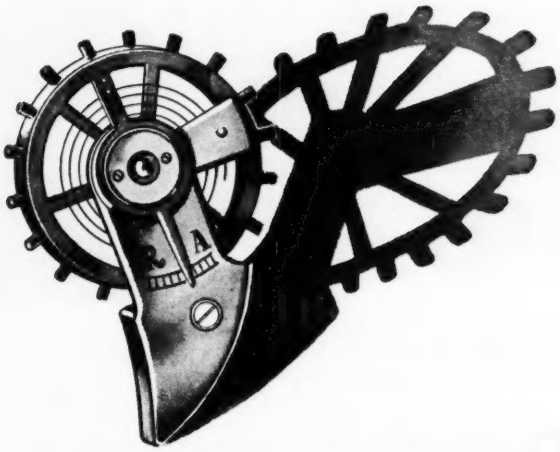
The 1949 edition of this annual compendium is presented in a new manner and the articles have been arranged according to subjects rather than related to a specific department. Each editor, of whom there are six, has commented on articles throughout the book and in some cases more than one editor has commented on one particular article. It is of interest to note that a new section has been set up to deal with articles on public health programmes. The book is divided into main subjects sections—Restorative and Prosthetic Dentistry, Dental Caries, Public Health, Children's Dentistry, Orthodontics, Pathology and Surgery.—R.H.

Blakiston's New Gould Medical Dictionary. Editors: H. W. Jones, N. L. Hoerr and A. Osol. *Published by the Blakiston Company, Philadelphia. By courtesy of Angus and Robertson, Sydney.* Price £4 4s. 0d.

This new and comprehensive dictionary is the product of the co-operative efforts of the editors, an editorial board and eighty contributors; it is well illustrated and as a first edition in its new form is an excellent production. The selection of type face has been done in order to assist the reader in ready reference and the thumb tab index is a useful adjunct.

Forty-five illustrative plates are excellent means of refreshing the reader on salient features of anatomy, physiology and haematology.

The general presentation of the work is of a high standard and of robust construction.—R.H.



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